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# Worldwide Report

ENVIRONMENTAL QUALITY

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23 June 1983

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No. 402

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ARGUMENTS FOR, AGAINST TASMANIAN DAM HOLD SPOTLIGHT

New Archeological Finds

Canberra THE AUSTRALIAN in English 20 Apr 83 p 1

[Excerpts]

OPPONENTS of the Franklin dam project received an important boost yesterday when it was announced that an important new archaeological site had been discovered in the Franklin River Valley in Tasmania.

The site, in a cave, contains stone tools dating back to the Ice Age, and would be flooded if the Gordon-below-Franklin Dam was built.

The Minister for Home Affairs and Environment, Mr Barry Cohen, announcing the find yesterday, said preliminary research showed the cave had been occupied by humans more than 20,500 years ago, at the peak of the last Ice Age.

Meanwhile, intervention in the High Court battle over the Franklin dam is being considered by the South Australian Government.

The State Attorney-General, Mr Sumner, sought legal advice on this matter from the State Solicitor-General, Mr Gray, last week.

The Premier, Mr Bannon, is known to have consulted with other State Premiers, but no decision has yet been reached on whether the State Government will join the NSW Government and seek leave to appear in the High Court to support Commonwealth opposition to the dam.

Overestimate of Power Needs

Melbourne THE AGE in English 20 Apr 83 p 4

[Article by Peter Ellingsen]

[Excerpt]

The Tasmanian Government is pushing ahead with its \$452 million Gordon below Franklin dam, despite figures which show an error in the Hydro Electric Commission's anticipated demand for power.

Electricity consumption in the State last financial year grew by 1.1 per cent, less than half the

2.7 per cent predicted by the HEC when it urged construction of the dam in 1979.

According to the Tasmanian Wilderness Society director, Dr Bob Brown, the discrepancy means the HEC over-estimated demand by 112 megawatts, or nearly two-thirds the generating capacity of the Gordon below Franklin dam.

## New Federal Legislation

Sydney THE SYDNEY MORNING HERALD in English 21 Apr 83 p 3

[Article by Patrick Walters]

[Excerpts]

CANBERRA. — The Federal Government will expand today the number of ways it can stop the Gordon-below-Franklin dam when it introduces into the House of Representatives the World Heritage Properties Conservation Bill.

Unlike the World Heritage regulations gazetted by the Commonwealth last month, which relied solely on the external affairs power, the new bill will rely on at least four Federal Government powers under Section 51 of the Constitution.

They are the external affairs power, trade and commerce power,

the corporations power, and the power of the Commonwealth to make laws for the people of any race.

The bill will significantly bolster the Commonwealth's chances of winning its High Court battle with Tasmania over the dam.

In addition to the express powers under the Constitution, the bill is also expected to rely on the Commonwealth's "national implied power" to do all things appropriate for a national government.

The Government decided yesterday to switch the introduction of the bill from the Senate to the House of Representatives to prevent the use of the gag by Opposition senators.

## Policy in Victoria

Melbourne THE AGE in English 22 Apr 83 p 6

[Text]

The State Government would join the Commonwealth in a High Court case to try to block the Gordon-below-Franklin, the Premier, Mr Cain, said yesterday.

He said he believed that the dams issue was a matter of national and international concern and that the Government had an obligation to intervene in the case.

Mr Cain acknowledged that State rights were an issue, but

added: "It's for all Victorians, it's for all Australians, this heritage in south-west Tasmania."

The New South Wales Government has already joined the Commonwealth in seeking a permanent injunction to prevent the Tasmanian Government from building the dam on the ground that it would be inconsistent with Federal regulations.

Mr Cain said he did not expect the case to develop into a fight between the Labor and non-Labor States.

## Comment from Perth

Perth THE WEST AUSTRALIAN in English 23 Apr 83 p 6

[Editorial]

[Text]

AS SPECIAL writer Hugh Schmitt has made clear in his series of articles, the Gordon-below-Franklin dam argument has become confused because of the entanglement of four big issues: State rights, conservation, jobs and Tasmania's power needs.

The State rights issue, perhaps inevitably, has now overtaken everything

else. The High Court will not be attempting to adjudicate on the beauty of the Tasmanian wilderness, the State's level of employment or the amount of electricity it will require by the turn of the century. It will rule solely on the validity of the Federal Government's attempt to stop the dam by use of its external affairs powers under Section 51 of the Constitution.

There can be no doubting the importance of the court's decision to the rest of Australia. The federal system will cease to have any relevance if Canberra's power extends to the point where State Governments are no longer in charge of their destinies in areas which have traditionally been their preserve.

Tasmania's rights in the matter make a compelling argument for construction of the dam to go ahead because it is beyond argument that the majority of Tasmanians want the dam built. And it is they who must live with the consequences of the decision — as people directly involved, not as remote subscribers to some laudable, but unrealistic, principle.

There is a strong jobs argument in favour of damming the river. In a time of high unemployment—and Tasmania's jobless rate is the highest of all the States—no job-creating proposal should be lightly discarded.

But short-term economic reasons are not enough in themselves. Ultimately a decision on whether or not to build a

dam hinges on whether its construction would involve the destruction of a priceless heritage. Avid conservationists, by their very nature, tend to see the loss of any part of the natural heritage as too high a price to pay for development. No matter how well-intentioned that view may be, it represents a closing of the eyes to the realities of the Gordon-below-Franklin. The Tasmanian Government, surely the body which knows best, says Tasmania needs the power which the dam would generate. So does the Tasmanian Opposition. And though the area to be destroyed is undeniably beautiful, and contains areas of scientific and archaeological importance, it is only a tiny fraction of the total wilderness area that would remain (and be made more accessible to those wishing to see it) if the dam was built.

It seems, the outcome of the High Court case notwithstanding, that the case in favour of construction is more convincing than that mounted by the dam's opponents. The dam should go ahead.

CSO: 5000/7577

# CONSERVATION GROUP CALLS VICTORIA 'POLLUTION HAVEN'

Melbourne THE AGE in English 25 Apr 83 p 3

[Article by Carol Sides]

[Text] Conservationists claimed yesterday that Victoria was becoming a pollution haven in its zeal to attract industry.

The Australian Conservation Foundation announced that it would join local conservation groups in north-east Victoria to oppose plans by a NSW company to build a wool processing plant at Barnawartha, near Wodonga.

The director of the ACF, Dr Geoff Mosley, said the proposal by G. H. Michell and Sons was a pollution threat to the Murray River. "The company could hardly have picked a worse location and a worse site for the development," Dr Mosley said.

"Yet the Victorian Environment Protection Authority has decided to grant a licence. The licence would enable the company to discharge 170 tonnes of salt a year, as well as phosphates and nutrients into the River Murray."

The River Murray Commission is one of 72 objectors to the wool processing plant. A spokesman for the commission said it had recommended to the EPA that Michell and Sons not be granted a licence to discharge into the river.

"We feel the commission has a charter to improve the quality of the river, particularly salinity levels, which are already causing problems in other parts of the river," the spokesman said.

He said that while 170 tonnes of salt was not very much, it was contributing to a problem which the Governments of three States

and the Commonwealth were spending a lot of money to overcome. The river commission was considering appealing to the Town Planning Appeals Board against the EPA licence.

Objectors have until 16 May to lodge an appeal.

Dr Mosely said the company had approached the Wagga Wagga Council to locate in that area, but had been given the "thumbs down" because of the pollution threat to the Murrumbidgee River.

"However, the NSW company has had a much better reception in Victoria which, because of its zeal to gain new industry, seems to be offering the company a pollution haven," Dr Mosely said.

The Minister for Conservation, Mr Walker said yesterday it was not definite that the wool processing plant would go ahead.

"Major decisions in regard to this company in the planning and environment areas are yet to be made," he said.

It is believed that there is some question about the EPA's legal position in granting a licence to the plant.

A 1980 High Court decision which defined the northern border of Victoria as the top of the southern bank of the Murray River means that although the plant would be built in Victoria, it would be discharging waste into NSW. This would come under the jurisdiction of the NSW State Pollution Control Commission.

A spokesman for G. H. Michell said the proposed wool processing plant had been designed to meet

Victoria's environment laws, which he described as probably the most stringent in Australia.

"Two-thirds of the processed water drawn from the Murray is returned by the wool processing plant," he said. "That is quite an achievement in view of Australia's water shortage. The water returned meets all EPA requirements."

He denied that the company had been rejected by Wagga Wagga Council and said the plant had been actively encouraged in that area. The alternative site had been rejected because of the economics of transport.

Michell was ready to start building the wool scouring and carbonising plant as soon as possible and would employ up to 110 people.

The EPA information officer, Ms Candice Gartner, said the authority had issued two discharge licences to the processing company on 29 March.

She said the licences did not permit offensive odours beyond the site boundary or the discharge of wastes to ground water. They did allow the discharge of treated waste water to the river.

She said the EPA had determined that the quantity and quality of the discharge from the plant, when mixed in the river, would cause a negligible change in water quality.

The EPA had urged the company to investigate the possibility of disposal of waste water on to land because it could not guarantee how long it would be permitted to discharge into the river..

QUEENSLAND URGED TO HOLD INQUIRY ON FOREST PRESERVATION

Brisbane THE COURIER-MAIL in English 26 Apr 83 p 16

[Text]

**THE Australian Conservation Foundation has asked the Premier, Mr Bjelke-Petersen, to order an inquiry into ways of preserving Queensland's remaining rainforests and, at the same time, of providing alternative jobs for timber workers.**

The foundation's rainforest co-ordinator, Mr David Allworth, said in Brisbane that Mr Bjelke-Petersen had been way off beam when he said recently that environmentalists had "little sympathy with the people they put out of a job".

"We wrote to the Premier to tell him he was quite wrong," he said. "We don't want to see anyone without a job because of conservation measures.

"Indeed, if the Queensland Government took conservation seriously, there would be more, rather than fewer, forestry jobs available."

Re-forestation and anti-erosion projects to repair the enormous damage done to the land in the last century by poorly planned logging and land clearances could employ many times more workers than were now engaged in felling rainforests and processing rainforest timbers, Mr Allworth said.

There was also growing evidence that rainforests preserved as national parks could generate more jobs and income from tourism and recreation activities in the long term than logging and milling could provide in the short term.

Mr Allworth said the Queensland Government appeared to care less about timber workers than it professed.

"For example, timber production from Crown lands in North Queensland will fall by about 40 percent when logging in the Windsor Tablelands rainforest, north of Cairns, is finished in about four years," Mr Allworth said.

"What will happen to the timber workers there? What jobs will they have when the last log comes out?"

"We asked the Forestry Minister, Mr Glasson, about this and he said the industry had not spelt out any plan to the government in this regard, nor had the government sought one."

Mr Allworth said this seemed to suggest the government had little knowledge of the employment implications of rainforest logging.

In the meantime, the fine Windsor Tableland rainforest had been seriously degraded and one of Queensland's four finest wilderness areas greatly impaired.

# TOUGHER PENALTIES AGAINST STRAITS POLLUTERS

Singapore THE STRAITS TIMES in English 8 May 83 p 6

[Text]

KUALA LUMPUR, Sat. — Malaysia is taking steps to toughen penalties against those who pollute the Straits of Malacca.

Deputy Transport Minister Datuk Abu Hassan Haji Omar said yesterday that Malaysia was studying various international conventions to improve safety standards for navigation as well as to crack down on vessels that pollute the Straits.

Speaking at the 12th meeting of the Tripartite Technical Experts on the navigational safety in the Straits of Malacca and Singapore, he said that once Malaysia ratified the 1974 Safety of Life at Sea Convention and the Convention of the Prevention of Marine Pollution, his ministry would be empowered to take action against offending vessels.

He added that although there were surveillance patrols in the Straits, the penalties for pollution were an inadequate deter-

rent. The maximum fine imposed on an offender is \$25,000 or two years' jail.

Describing the pollution in the Straits as severe, the minister said ships normally discharged sewage and oily ballast into the waters.

Last year, there were 50 cases where payment was collected for the cleaning up of marine discharge.

Two shipowners were also prosecuted.

If the practice of pumping oily ballast into the sea were allowed to continue, an estimated 10 million tonnes of oil would pollute the sea each year.

Datuk Abu Hassan also said the traffic separation scheme for the Straits of Malacca and Singapore, introduced in May 1981, was not a guarantee against maritime accidents in areas of difficult navigation.

The two-day meeting was attended by delegates from Indonesia, Malaysia and Singapore. — AFP.

CSO: 5000/4333



EROSION CONTROL MEASURES DISCUSSED

Chengdu SICHUAN RIBAO in Chinese 17 Mar 83 p 2

[Article by Shui Xuan [3055 1357]: "Afforestation of Reservoir Irrigation Ditches to Control Erosion"]

[Text] Water conservancy project management units everywhere in Sichuan Province have made full use of the superior conditions provided by water and soil resources and all kinds of water conservancy facilities. They have devoted much attention to the planting of trees for afforestation, to the planting of mulberry and the growing of tea and fruits. Incomplete statistics from departments concerned show a somewhat more than 130,000 mu area suitable for the planting of trees and afforestation located around the provinces more than 12,000 reservoirs and islets in lakes. Following several years of effort, most such places have now been afforested. Various kinds of trees have also been planted along more than half the more than 40,000 kilometers of irrigation ditches. In order to do a good job of afforestation, water conservancy project management units everywhere have assiduously carried out a policy of benefits to whomever plants and tends the trees, and have instituted contract responsibility systems. Some water conservancy project management units have also signed agreements with nearby communes and brigades for joint afforestation, with a division of benefits and joint management.

Practice has shown that the growing of trees for afforestation, and development of fruit trees on bald mountains and barren slopes, on both sides of irrigation ditches, and around reservoirs near water conservancy projects not only can control erosion and reduce the silting of reservoirs for a lengthening of the life of water conservancy projects, but also creates wealth and increases cash earnings for society and plays a definite role in bringing about self-sufficiency in management and support expenses.

Recently, water conservancy departments everywhere have been organizing project management units to continue attention to

afforestation work. Not long ago employees in the Provincial Hydroelectric Department's subordinate units went to the Dongfeng irrigation ditch in the Jiangyan irrigation region to plant trees and afforest the irrigation ditch.

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SICHUAN CPC COMMITTEE DEPUTY SECRETARY SPEAKS ON AFFORESTATION

Chengdu SICHUAN RIBAO in Chinese 4 Feb 83 p 1

[Article: "A Good Job of Voluntary Tree Planting and Afforestation Requires Carrying Out Seven Tasks. Yang Zejiang [2799 3419 3068] Makes Proposals at Provincial Conference on Voluntary Tree Planting by the Whole People"]

[Text] At the recently held provincial conference on voluntary tree planting by the whole people, Provincial CPC Committee Deputy Secretary Yang Zejiang put forward the need to carry out seven tasks in order to do a good job of voluntary tree planting and afforestation.

1. Carry out the task of understanding. Use of movies, television, broadcasts, publications, middle and primary school education and such diverse forms of publicity to spread knowledge about tree planting so that everyone understands the significance of voluntary tree planting, the task to be done, has knowledge, and consciously carries out the country's strategic policies.

2. Carry out the task of planning and designing. Making of plans and drawing of designs for park afforestation systems as part of plans for every city and town. Each county, township, and village should use zoning for agriculture and forestry as a basis for the planning of voluntary tree planting tasks, and after the masses have approved, implementation should be done. Cities and towns should stimulate rural villages, and Shijiazhuang City should stimulate all other cities. In places like Qinhuangdao and Chengde cities in Hebei that are open to the outside world, an even better job should be done. The province should plan several natural preserves and forested parks.

3. Carry out the task of building a tree planting corps and responsibility systems. This should be the responsibility of party and government leaders in all units supported by full-time and part-time voluntary afforestation cadres. The role of groups, all departments, old cadres, labor models, workers, peasants, youths, and weapon should be brought into play. Workers, peas-

ants, businessmen students and soldiers, and all trades and industries should give attention to afforestation at the grass roots of their own organizations. Everyone should be responsible for a division of labor, and a system of contracting for planting, insuring survival, and caring for trees with rewards and penalties should be instituted, with contracting of courtyards (at plants, official organizations, schools, and dormitories), contracting of streets, contracting of flower gardens, contracting of roads, contracting of stretches of woodlands, contracting of mountain tops, contracting of mountain ravines, and contracting of sand-threatened areas. If plantings die, replanting should be done; all who do not volunteer without cause should have to pay an afforestation fee; and those who cause damage should be punished. Should any unit be unable to complete its afforestation duties, the person-in-charge should be punished. Fines should be used for afforestation and not diverted to other uses.

4. Carry out scientific and technical tasks. The right trees for the right places are necessary in selecting the kinds of forests and trees. Distinctions should be made in kinds of trees planted in cities and countryside, and afforestation and beautification should be done differently and in accordance with the individual characteristics of streets, family courtyards, industrial plants, scenic areas, places of historic interest, and areas threatened by windblown sand. Distinctions should be made between places in which buildings are small and those in which buildings are multi-storied for vertical beautification. The layout of shrubs, bushes, flowers and grass should also be rational, and trees and grasses should be used that help eliminate pollution, deaden noise, and beautify the environment. Overall arrangements should also be made for the different needs of rural hamlets, roads, streams, dikes, ditches, sandy wastes, and alkaline wastelands. In all cases there should be contracting of planting, contracting of survival rates, and contracting of regular tending and growth.

5. Carry out the task of growing saplings. Within a period of 1 or 2 years, sufficient seedlings of good quality should be available. A variety of trees should also be available. Each city should have a flowers and trees company, and specialized households and specialized villages should be developed for the propagation of saplings, flowers, and grasses, and the development of their own "Tong family garden." Each unit might also sign purchase and marketing contracts with suburban rural villages for the propagation of seedlings to advance self-sufficiency in saplings and commodity production of flowers and trees.

6. Carry out the task of leadership. It is necessary to "always be ready, to afforest in three seasons, to tend all year round,

to evaluate and issue bonuses during fall and winter, and to take hold of the task and not let go." Forestry work stations may be formed from among graduates of forestry colleges and middle schools, or they may be organized by communes from among educated personnel who have an enthusiasm for and a familiarity with forestry, their pay coming from commune enterprises or forestry fines. All cities, counties, and large and small units should train mainstay cadres rotationally. All county agricultural technical middle schools should set up forestry classes.

In the felling of trees, examination and approval procedures must be strictly carried out. In cities, parks bureaus must give approval.

Carry out expense tasks. In addition to what has already been provided, it is recommended that each county and township provide afforestation funds themselves. Rural villages may apportion a certain afforestation fee to be paid by each household for the collective use of production brigades or communes. All units in cities and towns are to strive in every way to assure voluntary planting of trees. Over a period of 2 or 3 years starting from 1982, with some afforestation and some preparations for afforestation, the carrying out of preliminary kinds of work, persevering for several years in the same ways as has been done with rural contract responsibility systems, and doing as painstaking a job as has been done in family planning, it will certainly be possible to assure that voluntary afforestation will become better and more solidly done with each passing year, and that it will be stuck to.

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CS0:5000/4152

SICHUAN PROVINCE NOTICE ON AFFORESTATION WORK

Chengdu SICHUAN RIBAO in Chinese 4 Feb 83 p 1

[Article: "Sichuan Provincial People's Government Notice On Organization and Leadership of This Spring's Voluntary Tree Planting and Afforestation Work. (Not Published Elsewhere), 1 February 1983"]

[Text] The following notice has been prepared for the purpose of doing a good job in Sichuan Province's voluntary tree planting and afforestation work this spring.

1. The planting of trees for afforestation is a strategic task for the country. It not only vigorously develops forestry, but also meets needs for the tripling the annual gross output value of industry and agriculture. It also has a bearing on the great issue of the prosperity and happiness of the Chinese race. A solid job that produces results must be done. Though all jurisdictions have done yeoman work in this regard; nevertheless, the overcutting of forests for a long period of time has resulted in increasing deterioration of the ecological environment. In rural villages especially, this poses hidden perils for environmental protection and the building of production. We must have a clear conception of this. Solution to this problem requires both that decisive action be taken and the unhealthy tendency toward reckless cutting and denudation halted decisively, and that there be no relaxation in tree planting for afforestation to revive and expand forest resources. Only in this way is it possible effectively to preserve the natural ecological balance, to eliminate hidden perils, and to advance greater development of the national economy. Now the fine, opportune moment is at hand for spring tree planting and afforestation. Government at all levels should take a firm grip on planning, and direct all nationalities in cities and countryside to act quickly in active afforestation to make new efforts toward improvement of the provinces's landscape.

2. The launching of a voluntary tree planting campaign by the whole people is a major link in the advancement of the great cause of afforestation of the motherland. In this year's volun-

tary tree planting in Sichuan Province, the call from Comrade Deng Xiaoping should be heeded for "better year by year, more solidly year by year." Considerable progress should be made on the basis of the summarization of last year's experiences. The number of people engaged in voluntary tree planting throughout the province should be greater than 70 percent of the citizens responsible for undertaking volunteer tree planting tasks. In the province's 13 cities, they should number more than 80 percent. In rural counties, they should number more than 60 percent. Figured in terms of the number of citizens in the province as a whole who should undertake voluntary planting of trees, each person should plant more than four trees. This includes four, five, or more trees in rural villages, and more than three trees in cities. The survival rate for trees planted in the four besides [beside streams, roads, villages, and houses]f, and for afforested tracts (figured in terms of standard trees) should be better than 85 percent.

In organizing leadership of voluntary tree planting, all levels of government should proceed from realities and adopt flexible and diverse methods so that a large number of people participate in voluntary tree planting labor. In addition to making efforts to complete afforestation tasks in their own areas, city and town official organizations, industrial plants and mines, and armed forces units should organize to go to designated sites in nearby rural villages to contract sole responsibility for task completion for a limited period of time. Production teams in rural villages should be responsible for planning and carrying out voluntary tree planting tasks. First they should afforest the "four besides," and areas around reservoirs, and then they should afforest in a planned way bald mountains suitable for the growing of forests that belong to the state and collectives.

3. Diligent implementation of forestry policies and regulations of the Central Committee and the Provincial CPC Committee. All bald mountains, barren slopes, and swatches of land beside fields that are contractable to commune members for afforestation should be contracted to them. In the course of building forestry bases, it is necessary to consolidate the good management of existing commune and brigade forest farms, while at the same time encouraging specialized contracting, specialized household contracting, and contracting by households in partnership. In places not well served by transportation, or where population is sparse relative to land, household-run forest farms and forest farms run by households in partnership can be developed. They can sign agreements with collectives for the contract afforestation of barren mountains. Where privately retained mountains have already been apportioned to commune members, afforestation should be done within a limited period of time. Commune members should be en-

couraged to make small wooded groves in front of and behind their houses, on privately retained mountains, on private plots, and at places designated by production teams. Areas along both sides of railroads, highways, streams, and ditches, and reservoir areas are the afforestation responsibility of individual departments in charge. Each of them should plan for completion of their afforestation within a fixed period of time.

4. Efforts to increase results of afforestation. All afforestation should meet requirements of high survival rates, rapid growth, and marked benefits. In the process of organizing spring-time voluntary tree planting and afforestation, all jurisdictions must emphasize quality, emphasize effectiveness, emphasize science, and do a genuinely solid job. Systems of responsibility having rewards and penalties should be set up that include the "four fixeds, and the four contracts. There should be fixed tracts, fixed tasks, fixed quality, and fixed responsibilities, as well as the contracting of planting, the contracting of care, the contracting of survival, and the contracting of mature forests. Outstanding units and individuals who have fulfilled their duties well should be given commendations and rewards. Units or individuals who do not engage in voluntary tree planting for no valid reason, and those who do not fulfill afforestation plans well or who have low effectiveness should be criticized and indoctrinated or fined, and responsibility placed on their unit leaders.

5. Determined efforts in the propagation of seedlings. All jurisdictions must make sure to gradually implement and assure completion of seedling growing plans handed down this year. They must solve the problem of space for the growing of seedlings as part of their overall annual plan seedling growing tasks. State-owned and commune and brigade forest farms and nurseries should do everything possible to enlarge the seedling growing area and make the most of the model role of mainstay cadres. All government organizations and units in cities and towns should use vacant land to operate small seedling nurseries themselves. Rural villages should encourage specialized households to contract the raising of seedlings. Forestry departments should provide support through supply of seeds and technical advice in the raising of seedlings. Communes and brigades should help specialized households link up with units using the seedlings, or else contract the marketing of seedlings. It is recommended that free marketing be permitted for commodity seedlings that have been grown.

6. The key to a good job in voluntary spring tree planting and afforestation lies in the strengthening of leadership. Peoples governments at all levels should treat this matter as a major one



of service by the people. They should regard forestry with the same serious attention that they regard grain production, cash income, and planned parenthood, placing these four tasks in a position of equal importance and devoting genuine attention to them. The organization and work of afforestation committees at all levels needs strengthening. Leading comrades should themselves make deployments and take the lead in planting trees. They should further improve workstyles, take hold of crucial tasks, and provide a focus for voluntary tree planting and all forms of afforestation. Prefectures and counties that have yet to determine a focus should quickly set one and devote diligent attention to it, thereby both achieving results as well as gaining experiences, playing a model role, and giving impetus to work over a wide area.

9432

CSO: 5000/4152

PARTY ORGAN EXPRESSES CONCERN FOR ENVIRONMENTAL PROTECTION

Sofia RABOTNICHESKO DELO in Bulgarian 3 May 83 p 1

[Editorial: "For a Flourishing and Beautiful Earth"]

[Text] The evolution of human civilization is inextricably linked to the use of the natural resources and riches of our environment. The Marxist-Leninist theory of interaction between society and nature defines it as a two-stage process: on the one hand, a rational, comprehensive exploitation, and on the other, preservation and restoration of the environment. This requirement is also part of the Party's program for the building of a developed socialist society. Protecting the environment is a government policy which can also be implemented through a mass, nationwide movement.

At the high forum of the Twelfth Party Congress, Comrade Todor Zhivkov clearly stressed that we should strengthen our efforts to protect the environment, which is a common and immutable vital wealth for the people. Because there are still some ministries and administrations which have polluting enterprises in different places that do not comply with their obligations in the best possible way.

It has been known for years that building municipal purification stations has greatly lagged behind. Of the planned 72 million leva for the first two years of the 5-Year Plan, only 36 million leva have been spent, that is, about 63 percent.

The main offender--the Hydrostroy State Economic Trust--continue to repeat old errors, transferring construction brigades to other term-bound construction projects, not providing the necessary construction and assembly staff and mechanization. In addition, the equipment delivered gradually wears out, the schemes and methods for purification are obsolete even before they are put into operation. All of this is going on right now, when the call for saving water is today's task. We should keep in mind that the water balance in our country is based on the prerequisite that all the waste water will be biologically purified in the near future. Lately there has been concern and some complaints about bad management of forests in watershed zones (Gabrovo, Samokov); the felling of special purpose forests has been allowed.

There is a serious problem in the continuous decrease in tillable land as well. The question of erosion is also important and distressing. In a certain number of regions there is evidence of reduced humus and bio-physical qualities of the soil as a result of irrigation with impure water, of smoke from industrial enterprises. Here and there, non-scientific and conventional usage of artificial fertilizers sometimes continues. It is incorrect to think, however, that the weaknesses allowed in preserving nature result mostly from the aftereffects of scientific and technical progress. As a matter of fact, they are caused to a great extent by poor management of this process. Whereas, a correct, scientific solution of the ecological problems has led to the purification of air in many polluted regions of the country. The electrofilters of the First Komsomol Thermo-electric Power Plant were put into operation, as well as the new system for producing sulphuric acid from waste gases at the G. Damyanov copper smelter and refinery in the city of Srednogorie, etc. Thus, the percentage of captured noxious gases and substances of the total amount of emissions in the air reached about 77 percent. There was also a 46 percent increase in the percentage of purified water.

There are already visible successes in terms of the Bulgarian Communist Party's delineation of its general direction in environmental protection activity--implementation of waste-free and low-waste technologies in the economy. An exact "picture" of their condition over the entire territory of the country was made, and this created preconditions for their accelerated introduction in practice.

There is a constantly increasing sense of responsibility in many of the managerial cadres, which lately have been putting more and more efforts into protecting nature. Our country has entered a new stage of development, at which the increasing potential of the socialist economic system allows for a decisive change in environmental protection activity on a qualitatively new basis. That is why, in accordance with the guidelines of the Party and the government policies in this respect, the main goal in using natural resources and the riches of our country should be striving to prevent pollution of the water, the air, and the soil, on the basis of a consistent application of the economic and socio-ecological approach and of the most recent technical achievements.

In this respect, government policies in our country are being carried out under the direction of the Party, trade union, and Komsomol organizations, with the active cooperation and participation of the national movement for protection of nature sponsored by the Fatherland Front. In this way, young and old can give their contribution to the noble cause. The signing of the minutes for collaboration between the National Committee for the Protection of Nature and the Union of Bulgarian Journalists this year is a new moment in the struggle to protect the vitality and reproduction of nature, to make its protection a behavioral norm. Thus, with the joint efforts of all, of the entire population, we will succeed in preserving our country's nature and in transforming it into a nourishing mother for future generations.

12334  
CSO: 5000/3014

WATER POLLUTION PROBLEMS ANALYZED ; RECOMMENDATIONS MADE

San Salvador EL TIEMPO in Spanish 10 May 83 p 7

[Text] Safe drinking water is provided to only 90 percent of the urban population and 30 percent of the rural population.

Existing systems for treating sewage serve only 30 percent of the population.

There are no systems to treat sewage from the cities and from industry. The Acelhuate River is contaminated, and its system for purifying itself has been overcome by the burden of sewage. The contaminated area reaches to within a few kilometers of Lake Cerron Grande.

About 80 percent of the water consumed in the cities returns to the rivers in contaminated form.

In the Central American countries a person consumes, on the average, 200 liters of water per day, while in Europe the consumption is 80 liters per person per day.

The designed life of sewage systems is 25 years.

In El Salvador existing standards for the disposal of water used by industry are not respected, and this industrial waste water is destroying the capacity of the rivers to purify themselves, due to its PH [acid-alkaline balance], its temperature, content of solids, oxygen, and chemical elements. These additives to river water destroy the fish and aquatic bacteria. Food, shellfish, and flora also contaminate drinking water and produce enzymatic reactions.

It is expected that the population will double in the next 20 years.

The San Salvador aquifer is diminishing in size with each passing day by some 20,000 cubic meters, and its level is going down by 1 meter per year.

In the last few years the highway network has expanded from 8,700 kilometers to 12,190 kilometers, and there has been no concern about increasing the flow of water from the aquifers.

Water is used for human and industrial consumption and for irrigation. It is also needed to produce electricity, although it is not consumed by this use. About 63 percent of the available water is drawn from the Lempa River basin.

In the river basins of El Salvador 56,682,000 cubic meters of water fall as rain each year. About 11,816,000,000 cubic meters are discharged into the sea through rivers on the surface, and 183,000,000 cubic meters are deposited in the sea through subterranean channels. About 5,972,000,000 cubic meters filter through to the aquifers in the country, and 38,711,000,000 cubic meters return to the atmosphere through evaporation.

In 1980 there were 207 wells in use for drinking water, 87 for irrigation, 121 for industrial uses, and 270 other wells abandoned from which 149 hm<sup>3</sup> were extracted per year.

About 86 hm<sup>3</sup> of water were drawn from the wells for consumption purposes. Natural springs produced 439 hm<sup>3</sup> of water, but only 70 hm<sup>3</sup> of water from this source were used.

#### Water Use in the Year 2000

In 1980 the irrigated area was 34,371 hectares, and it is expected that in the year 2000 a total area of 245,941 hectares will be irrigated, of which 83,089 hectares will be planted in pasture crops; 69,604 hectares in rice; 62,000 hectares in beans; 63,355 hectares in corn; 25,792 hectares in soybeans; 31,060 hectares in sugarcane; 25,925 hectares in sorghum; 13,839 hectares in cotton; and the rest will be planted in peanuts, sesame seed, vegetables, plantains, watermelons, bananas, chili peppers, citrus fruit, other fruits, and okra.

In March the maximum demand for water used for irrigation purposes will be 202.62 meters per second.

Existing industry is producing contaminants equivalent to a population of 4.7 million people. Coffee and sugar are the crops which contaminate the most, producing contaminants equal to a population of 3.8 million people. There are 315 industrial plants which are contaminating the rivers, of which 211 are related to coffee production and 11 are sugar factories. Diluting industrial wastes to a safe level requires 845 cubic meters of water per second, while municipal wastes require 257 cubic meters of water per second.

The flow of all of the rivers amounts to 952.3 cubic meters per second during the rainy season and 117 cubic meters per second during the dry season.

## The Problem

The greatest problem confronting El Salvador, and which will become more serious in the future, is the contamination of its rivers, since we do not have a flow of water necessary to dilute industrial waste water to a safe level, much less if we add the waste water from the towns and cities. This problem is further aggravated because most of the contamination is produced during the summer, when the flow of water in the rivers is barely 177 cubic meters per second, whereas we need 1,102 cubic meters per second to dilute the industrial and urban wastes to a safe level.

## Causes

- 1) Conventional systems to purify the water distributed to the people are expensive and require large investments and enormous maintenance costs.
- 2) No government authority has been concerned about keeping the water supply clean, since our authorities tend to regard everything domestic as of little importance, and place value only on what is foreign.

## Proposed Solutions

- 1) Use the biochemical, enzymatic process for the marketing of coffee, which Dr. Francisco Lara has discovered. This process avoids contamination of water, and the contaminants produced by this procedure can be the source of pectine, alcohol, and monocellular protein.

This process uses one-twentieth the amount of water, increases the weight of the coffee in money terms by about 6 percent, and reduces the time needed to process a quantity of coffee from 100 hours to only a few hours. By-products of this process are fruit pulp and sweetened water which can be used to produce biogas and other products.

- 2) Promote the development of biogas systems to use up garbage and human and animal excrement.
- 3) Provide public lavatories with systems for cleaning the water used, in order to purify the rivers.
- 4) Promote the resettlement of landless farmers to small cities with populations of 10,000 or so, where private, cooperative, and state enterprises can carry out the measures recommended above and provide jobs for them.
- 5) Encourage the construction of cisterns in each home to limit the demand for water produced by the aquifers and reduce the loss of rainwater through evaporation.
- 6) Plant trees everywhere to speed up the filling of the aquifers, improve the temperature, and thus reduce evaporation.

7) Oppose controlling cyclones in the Caribbean, because 30 percent of the rainfall which we receive is from storms which accompany the cyclones. If cyclones are controlled, we will have a reduction in rainfall, which is so vital a resource.

8) End direct and indirect subsidies so that users will pay the whole cost of cheap water and thus avoid waste. Investments in water resources should be paid for in U.S. dollars from the free market, as is the case with imported fuels.

9) The poor should receive low interest loans to supply themselves with water and install biogas systems to eliminate excreted fecal material.

10) Establish large cities away from San Salvador, in order to reduce the rate of growth of this city and avoid the need for costly construction of water-related public works for bringing water from great distances.

1) La disponibilidad y usos esperados del agua son los siguientes en millones de metros cúbicos por año.

2) CUENCA	3) Mm3 DISPONIBLES	4) Extensión Km <sup>2</sup>	5) Flujo Máximo m <sup>3</sup> /seg	6) DEMANDA 1980			10) HABITANTES 2,000		13) DEMANDA 2,000			17) % de Uso.
				7) HUMANO	8) IND.	9) RIEGO	11) URBAN	12) RURAL	14) HUMANO	15) INDUS	16) RIEGO	
A RIO LEMPA	11.260	18.246	599	237	19	101	2.8	2.1	518	57	663	11
B RIO PAZ	938	929	45	11	-	7	.1	.2	19	-	96	12
C LA BARRA	368	659	20	3	-	11	-	.1	5	-	140	39
D SONSONATE	766	875	42	16	1	213	.2	.3	32	2	304	44
E LA LIBERTAD	360	1,149	20	6	-	13	.1	.2	12	-	92	30
F JIBOA/LA PAZ	898	1,554	51	23	1	54	.2	.4	43	3	728	86
G USULUTAN	617	968	32	10	-	30	.1	.2	18	1	326	56
H RIO GRANDE	1,161	2,352	63	24	1	51	.3	.5	49	2	517	49
I JUCUARAN	298	804	19	7	-	6	.1	.2	14	-	100	36
J GUASCORAN	1,112	3,047	62	8	-	1	.1	.3	15	-	161	16
T O T A L	17,778			344	22	487	4.	4,5	726	65	3,132	21

Key:

- (1) Availability and Expected Uses of Water Are As Follows in millions of Cubic Meters Per Year.
- (2) River Basin
- (3) Available Water in Cubic Meters
- (4) Area in Square Kilometers
- (5) Maximum Flow in Cubic Meters Per Second
- (6) Demand in 1980

(Key continued on following page)

- (7) Human
- (8) Industrial
- (9) Irrigation
- (10) Population in 2000
- (11) Urban
- (12) Rural
- (13) Demand in 2000
- (14) Human
- (15) Industrial
- (16) Irrigation
- (17) Percent of Total Use

5170

CSO: 5000/2031



PARISH URGED TO TAKE STRICT MEASURES TO SAVE 'BLUE HOLE'

Kingston THE SUNDAY GLEANER in English 15 May 83 p 1

[Text]

Following recent reports of trees being cut down in the vicinity of Blue Hole in the San San area of Portland, the Office of the Prime Minister, in conjunction with the Jamaica National Trust Commission, has written to the Secretary of the Portland Parish Council, requesting that the Tree Preservation Order of 1976, which applies to Blue Hole, be rigorously enforced.

Blue Hole is one of the premier attractions of Jamaica, but it exists in a rather fragile environment. If vegetation is removed from the steep hillsides surrounding the lagoon, erosion will result. Top soil, stones, gravel and debris will be washed into the waters. In addition the fresh springs which run underground from surrounding hills, and which empty into Blue Hole to give it the natural sea-green colour, would be affected. Soon there would be no Blue Hole.

Over the years there have been repeated applications from developers and individuals to create subdivisions, to construct cottages, to operate a private member's club, to erect a yachting marina, to introduce water skiing, etc. Such developments have been resisted by organizations and people who recognize that if the

peace, tranquility and scenic beauty of Blue Hole are to be preserved for the benefit of Jamaicans and visitors, every effort must be made to see that the environment of the area is preserved.

In 1967 representatives of the Beach Control Authority, Town Planning Department, Ministry of Development and Welfare, Portland Parish Council, the National Trust Commission and other interested persons, met to give consideration to the protection and preservation of the area. It was recommended that action should be taken under Section 25 of the Town and Country Planning Law No. 42, of 1957, in respect of a Tree Preservation Order for the preservation of the uplands and woodlands around the Blue Hole.

The Tree Preservation (Blue Hole, Portland) Order of 1976, prohibits the cutting down, topping, lopping or wilful destruction of trees in the area, without the consent of the Parish Council. The Parish Council has also been requested that in dealing with building proposals for the area the need to preserve Blue Hole for the people of Jamaica must be the first consideration.

CSO: 5000/7578

PEMEX COMPENSATES PEASANTS FOR OIL EXPLORATION DAMAGES

Mexico City UNOMASUNO in Spanish 27 Apr 83 p 2

/Article by Rene Delgado/

/Text/ The federal government acknowledged yesterday that oil exploration activities in the state of Tabasco "has caused destruction of lands and crops," besides damaging the ecology, and as a result, it decided to start a program, whose initial investment will reach 1,012,400,000 pesos, which will include indemnity payment to peasants in Comalcalco, Huimanguillo, Cardenas and Paraiso, sites where property, wealth and cultivation were affected.

The Secretariat of Government showed a document in which it is recognized and sets forth that the federal government will sign a coordination agreement with the government of Tabasco through which "a program using federal funds will be put into effect compensating peasants affected by exploration and oil exploitation and for repairing damage sustained by local townships, as well as restoring the ecological balance."

In the document mentioned, it is shown that President Miguel de la Madrid officially recognized the damage done by the oil industry in a large area of Tabasco, which includes the townships of Comalcalco, Huimanguillo, Cardenas and Paraiso, and to start a program of economic and social development that would include the construction of schools, potable water access, drains, roads and bridges and an adjunct program of compensation "to all peasants who were hurt" by oil activities.

"PEMEX has carried out activities on several ejidos and small privately owned lands," the document stated and added that damage has been made to farm lands, private property and cattle caused by industrial waste which has harmed the ecology.

"In particular, Mexican Petroleum admits," the text confirms, "that development of petroleum activities--exploration, exploitation, processing and refining--has indeed caused damage to lands and crops as a consequence of industrial wastes and, moreover, has destroyed the ecology on said properties and urban areas."

Thus, after having made an inspection, a program has been announced under the name "Concerning Socio-Economic Development in Areas Affected by Oil Activities

in the State of Tabasco" and in which the Secretariats of Programing and Budget, Agriculture and Hydraulic Resources, Communications and Transport, Urban Development and Ecology, as well as Mexican Petroleum and the Federal Commission on Electricity, will participate. Organizations which would coordinate jobs with the government of Tabasco in developing a program that will benefit 5,000 peasant families.

As a matter of fact, the program will take effect today in a ceremony to be held in Villahermosa, Tabasco.

9908

CSO: 3248/762

# RAINS DAMAGE AGRICULTURE, HOUSING, OIL INDUSTRY IN NORTH

Lima EL COMERCIO in Spanish 24 May 83 p A12

[Text] The catastrophic rains in the northern region of Peru, the heaviest and longest ever registered in the country's history -- there is still no sign of any letup -- have been the cause of five months of devastation and material losses calculated at over 800 billion sols.

Not only has the inclement weather sown destruction in the north of Peru, but the destructive effects have reached as far as the central zone, where towns such as Matucana, Santa Eulalia, Chosica, Moron and others, cannot recover from the damage.

Between January and March, a series of floods washed out the central highway, burying many buses and other vehicles in mud and water and causing the deaths of dozens of persons. The supply of food to Lima was interrupted by slides.

In the north, when the rainfall began at the end of last year, it was seen as one of the effects of the persistent El Nino phenomenon off the Peruvian coast, but no one foresaw the extent or the magnitude of the damage that would result, especially in the now decimated departments of Piura and Tumbes.

## Agriculture and Highway System

Although agriculture (with over 50 billion sols in losses) and the road system (for whose reconstruction over 150 billion sols will be needed) are the areas most affected in both departments, nature has not spared housing, schools, health centers or sewer systems and has paralyzed a high percentage of all productive activities.

Hundreds of kilometers of roads and highways have been destroyed, along with some 50 bridges in the north. For example, the Pan American North, one of the main trunk roads from the interior of the country connecting the coastal departments from Lima to Tumbes and running through Ancash, La Libertad, Lambayeque and Piura, has been washed out in several areas, which floodwaters have turned into vast lakes.

Thousands of families have lost their homes and belongings and are still suffering the effects of the torrential rainfall, which, accompanied by lightning, continues to fall daily on the already heavily hit northern cities.

## Oil Industry

Tumbes, one of the departments hardest hit by the natural disaster, has suffered the effects of 20 hurricanes that have lifted the roofs off of homes and other buildings. The ports of Paita and Talara have been the victims of tidal waves which paralyzed the fishing industry for days.

The oil industry, which in Talara has one of the main centers, has been seriously affected, with losses of some 100 billion sols by the end of April. Water has flooded oil fields and facilities, paralyzing the production of many wells and forcing suspension of drilling at other sites. It has damaged a complex system of oil and gas pipelines.

The rest of the country's cultural heritage has also been weakened and damaged by the natural disaster. Chan Chan in La Libertad, for example, the largest adobe city in the world, is now threatened by potential collapse if its walls are flooded and eroded.

Work is already moving ahead of recovery, although the rainfall has not yet ceased, making the task that much more difficult. There is also the danger of epidemics and diseases, mainly affecting children, in all areas hit.

## Hurricane Winds

Between the hours of three and five yesterday morning, hurricane winds hit Tumbes, causing the people to evacuate the area in haste. The cathedral bells tolled to warn the population.

Fortunately, there were no casualties or losses of homes, hard hit by the torrential rain that began in October of last year.

So far this year, rainfall has totaled 2,800 millimeters. The river has constantly risen and changed its course, leaving cultivated areas as islands, tearing out irrigation systems and washing out roads, seriously affecting coastal areas, where the lobster industry is suffering losses in the millions.

Floods have also destroyed 50,000 stands of forest, wiping out the enormous efforts of experts.

11,464

CSO: 5000/2032

## TRINIDAD AND TOBAGO

### BRIEFS

TOBAGO BEACH POLLUTION--SCARBOROUGH--TOBAGO BEACHES are among the most beautiful in the Caribbean, if not the world but they are rapidly becoming a unusable. Pollution of the beaches is fast becoming a reality in many parts of Tobago. This observation was made by Tobago County Medical Officer of Health, Dr. Marjorie Nicholls, who has launched a campaign against pollution. She is seeking the assistance of all citizens. "Pollution," she says, "means making dirty. We are responsible for making our beaches dirty. The sea is not a place for disposal of garbage," she stressed. She said that seabathing may be a thing of the past in a few years "if we do not take steps now to protect our beaches." Dr. Nicholls pointed out that in some parts of the world the beaches have become unusable through pollution [Port-of-Spain TRINIDAD GUARDIAN in English 13 May 83 p 6]

CSO: 5000/7579

## ENVIRONMENTAL STUDY SHOWS INDIA BECOMING WASTELAND

Madras THE HINDU in English 11 May 83 p 8

[Editorial]

[Text]

OVER A LAKH people are uprooted by a dam that submerges 240 villages and the promised model townships are not in sight. A big industrial plant consumes 720 million litres of water a day from the Son depriving 120 villages downstream of their basic necessity and discharges its effluents back into the river. Skin diseases among the people, a higher death rate of cattle and the extinction of aquatic life in areas downstream are among the major consequences of polluted water. Mines have their own impact on the environs. The water-table is pushed down to the detriment of farmers, and large tracts of land around underground mines are rendered barren of vegetation. Forest lands are denuded systematically, thanks to the largescale illicit felling by contractors in collusion with corrupt officials, while villagers are denied access to forests for collecting even the fallen twigs.

These features of the environment profile that a study group presents of Shahdol — a north-eastern district of Madhya Pradesh abounding in forest and mineral wealth — are not untypical of the state of the environment in the country, which has been laid bare in many of its disturbing facets in a report by the Centre for Science and Environment — a non-official and independent effort. The message that India is rapidly becoming a 'vast wasteland', with an environmental crisis engulfing it, runs through the report's sections relating to land, people, water, atmosphere, health and habitat. Among the facts highlighted are these: intensive agriculture, without supplementation by organic manure, is leading to a rapid depletion of soil fertility; 70 per cent of all the water available is polluted and about 73 million workdays are lost every year on account of water-related diseases; ill-planned construction schedules of the Kali hydel project (Karnataka) have led to

severe soil erosion and loss of topsoil, making the area a desert unfit for cultivation; 60 per cent of Calcutta's residents suffer from respiratory diseases related to air pollution; and 70 per cent of the rural population is without access to safe water supply. The list is long.

The environment cannot be reduced to the sum total of air, water, forests and wildlife. It has its quantitative and qualitative sides that say a great deal about the material life, the science, the wisdom and the level of development of a society — as well as its attitude towards the evolving future. It is basically related to the pattern of resource use, so that environmental planning becomes an exercise in the allocation and management of resources so as to improve the well-being of those engaged in production, prevent the harmful byproducts of industrialisation and conserve natural wealth. This involves the resolution of conflicts not only between man and nature but also between man and man, that is, the clashes between one section of the population and another, each with a common and identifiable interest. From the Shahdol example, the research group (whose effort was funded by the Department of Science and Technology of the Government of India) establishes the inter-linkages among conflicts and traces them to the central issue of 'control of resources'. The team presents an abstract framework for planning the environment (which it calls a 'demand model' because all conflicts are seen to stem from demands made by different sections) and also formulates programmes based on it for resolving the two categories of conflicts.

What the study emphasises is that a conservation strategy has necessarily to be multi-disciplinary in character, recognising the interconnections between employment, health, education, food, agriculture and so on — areas

conventionally slotted into separate compartments. Governmental effort in India at preserving the environment not only lacks this many-sided approach but is feeble and superficial. Besides, the impetus for such endeavour has largely been campaigning or protest by citizens' groups or conservationists when a major attack is launched on ecosystems. No doubt, official documents contain references to the 'ecological balance' and the 'harmony between man and nature', a rarity in the past. There have also been exercises in institution building — for instance, the creation of the Department of Environment (DOE), the National Committee on Environmental Planning (NCEP) and several expert panels and task forces. Some special laws have been made too; such as the one on the prevention of water and air pollution.

All these may be welcome to the extent they indicate a forward-looking turn in official thinking. In real terms, however, they have meant very little and what has been achieved is,

at best, of minor if not peripheral value. One reason is that environment consciousness has not permeated the bureaucracy and the political leadership at all levels. The DOE and the NCEP are looked upon as no more than agencies handing out guidelines that have little relevance to the objectives of the development process. This is primarily because they have not been invested with the type of authority they need to play the role expected. Also, as pointed out in the 'State of India's Environment 1982' (the voluntary effort referred to earlier), the Centre has yet to evolve an "explicit national environment policy which is more than just a set of isolated programmes carried out by a few isolated government agencies". What is equally important, the official bodies must open out to, and interact with, scientists and voluntary organisations so that a programme for the recharging or regeneration of the environment can be turned into a matter of national priority that relies on the participation of the people.

CSO: 5000/7041



# DENUDING FORESTS FOR FIREWOOD DECRIED

Kathmandu THE RISING NEPAL in English 20 May 83 p 3

[Article by Kunda Dixit]

[Text]

The countdown has begun. The hills surrounding the Kathmandu Valley are now well on their way towards ecological collapse. Forests on the valley rim are at this moment undergoing accelerated plunder to meet the increasing energy demands of the capital city. In the absence of effective conservation measures, the free-for-all has resulted in entire hillsides losing their forest cover in the past ten years. It is important to understand that the trees are not being cut to meet rural firewood needs, but are being fed into the furnace of Kathmandu's urban energy requirements. KUNDA DIXIT reports.

High on the slopes of Chandragiri on the Valley's southwest rim, a rhododendron tree in full bloom was being hacked down. It took a relay of three axe-men one hour to fell it. The final swing of the axe, and the trunk creaked, the crimson flowers quivered, and the tree finally toppled onto the slope with a sigh.

Punya Ram comes from a settlement near Panga at the bottom of the hill, and this is his livelihood. He and his colleagues climb up to the receding forest about three times a week to take down loads of firewood. This he sells at about Rs 25 per load to firewood dealers in the Kalimati Bazar.

Looks like rain, we better hurry up," says Punya Ram turning to his friends who are busy dismembering the rhododendron tree. The red flowers lie scattered on the grassy slope making it all look like fishermen carving up a bleeding whale on the beach.

Soon, the dokos are full of flesh-coloured slices of firewood. Punya Ram heaves his doko up on his back and adjusts his head strap. He will come tomorrow to finish off what is left of the tree, and for today he has earned his evening meal. My talk with Punya Ram was not an interview in the strict sense of the word. If it was, I

would have certainly have asked him if he realised the "full environmental impact" of his action or if he knew that it was against the law to chop down trees. The thin grey line between good and bad, between what is legal and what is not, can be a bit hazy when a person is willing to slog four hours up a mountain everyday, cut a

large tree, and carry thirty kilos of firewood back down the mountain to make his living.

Punya Ram looked to be about forty, which would have meant that he was a professional axe-man during the days when the forests came down to the Champadevi Pass. Even ten years ago, the pass had enough jungle cover to make the climb a pleasant hike through a verdant forest. Today, it is a barren ridge that doesn't even have grass cover due to the frequent bush fires that sweep the ridge.

A woman from Chobhar is on the ridge now filling a jute sack with charcoal from the burnt out tree-trunks. Scavenging in the ashes of a once lush hillside, she, too, looks up at the gathering clouds.

Charcoal is the other hot item that sells well at the Kalimati Bazar. A sack full goes for anything up to thirty rupees and is a lot lighter to carry. "It is the cow-herds," says the woman, looking up to show a face blackened with ash. "They set fire to the bushes so that the green shoots will sprout after the rains."

It is a strange coincidence that this hill is called "Bhasmeshwar" (Lord of the Ashes) by the local people — since the whole hillside is charred by windswept fires that are usually lit this time of the year. One such inferno, started at the bottom of the hill rises in a black swath three thousand feet up to the

summit of Bhasmeshwar. Other little dots can be seen on this slope stuffing charcoal into sacks.

There is an ominous thunder, as dark clouds jostle over the jagged ridge. Only a torso remains of the rhododendron tree as large drops of rain begin to fall. On the ridges of Chandragiri the lowering clouds obscure the few oak and rhododendron trees that still stand.

We turn our heads down and begin the descent to Kathmandu.

BRIEFS

DROUGHT AID--WINDHOEK--The Administrator-General of SWA/Namibia, Dr Willie van Niekerk, has announced in Windhoek that drought aid to farmers totalling R49,6 million will be made available in the next financial year. Dr van Niekerk said R37-million of this amount would be for direct drought relief. The deteriorating situation among farmers could cause a general economic collapse in the rural areas unless "drastic relief measures" were continued. Karakul farmers would receive R3-million in drought aid, while R9 million would be made available for the export of meat to countries other than South Africa. Windhoek City Council at its meeting this week announced the basic water meter tariff for consumers would increase from July 1 by up to nearly 200 percent, and the tariff per kilolitre would rise from 38 cents to 53 cents. The increases were brought about by higher prices for water supplied to municipalities by the Government. The new Government tariff was 33 cents a kilolitre, an increase of 10 cents. The water tariffs have elicited sharp criticism from consumers. In an editorial yesterday, the Republikein described the higher tariffs as "a slap in the face" which Windhoek's public did not deserve. [Text] [Johannesburg THE CITIZEN in English 28 May 83 p 13]

CSO: 5000/194

# AGRICULTURAL SCIENTISTS' VIEWS OF DROUGHT REPORTED

East London DAILY DISPATCH in English 18 May 83 p 21

[Article by Mark Schacter]

[Text]

ALICE — Drought is a double-edged sword in Ciskei.

Not so, certainly, for Ciskeians living on the land. For them there is nothing "double-edged" about it. There is only one edge, and it cuts harmfully, even tragically.

But from the point of view of agricultural scientists at Fort Hare University here who are concerned about saving this young country's precious veld, drought brings a measure of hope along with disaster.

Members of Fort Hare's Faculty of Agriculture will tell you — with some hesitation, for fear that their remarks will be misrepresented as signs of academic heartlessness — that the same drought that is causing an "alarming rate" of stock death in Ciskei may also be a blessing as far as the long term prospects of the veld are concerned.

"One of the most serious factors limiting livestock raising in subsistence areas such as Ciskei is the problem of overstocking, said Mr. Winston Trollope, of the agriculture faculty's Department of Pasture Science.

"So the one bright star

of the drought," Mr Trollope said, "is that stock losses will reduce pressure on the veld and allow it to make a significant recovery."

Overstocked for decades, the Ciskeian veld is perennially in such bad condition that even the current drought has had relatively little effect on it.

"The veld is so degraded that it could hardly have become more degraded," Mr Trollope said.

Even so, in the exceptionally dry weather of the last two or three years, the veld has gone from bad to worse.

"Some areas of Ciskei — around Keiskammahoek and Peddie, for example — already look like a desert," Mr Trollope said.

"If there is no rain, the existing high rate of stock loss and the severe defoliation of the veld will continue."

But even with adequate rainfall, it would take 20 to 30 years of proper stocking and proper grazing management to restore the Ciskeian veld to good condition.

Proper stocking and management of the veld, aims often neglected in Ciskei, were now more

possible to achieve than ever before, Mr Trollope said, because of recent research into the "carrying capacity" of the sweetveld of the Eastern Cape.

"Carrying capacity", expressed in hectares per animal unit, is a measure of the veld's ability to support grazing animals for a sustained period.

"Up until recently, carrying capacity has been one of the most difficult things for the farmer to estimate," Mr Trollope said. But now, by using a statistical model developed by research at the Dohne agricultural station, it appeared that carrying capacity could be estimated to support grazing animals for a sustained period.

To arrive at an estimate for any particular piece of veld, the veld is first analysed for its botanical composition, and is then given a score (ranging from 0 to 100 per cent) accordingly.

The score is entered into an equation, which yields a figure for carrying capacity.

Ideally, farmers will balance their "stocking rate" — the rate at which they put animals out to graze — with the carrying capacity of their land.

"But in Ciskei, stocking rates are generally far in excess of carrying capacity. Therefore, we end up with overstocking," Mr Trollope said.

Mr Trollope said he believed that the system of communal land tenure in Ciskei was a major cause of overstocking. When grazing was held in common, individual farmers had little motivation to remove stock.

"If you reduce your stocking rate, someone else will just move more livestock in."

Another factor, Mr Trollope said, was the production costs involved in livestock raising. In Ciskei they were

minimal because the government covered the farmer's expenses for items such as watering points, fencing, and dipping.

"In commercial farming, the most important factor controlling stocking rates is the ability to make a profit, so stocking rates depend on production costs."

Farmers whose costs were heavily subsidised would, by contrast, be less interested in maintaining a profitable stocking rate, and would tend to overstock.

"We must allow economic forces to set stocking rates," Mr Trollope said.

Mr Trollope suggested several ways in which this might be done:

- Have farmers contribute directly to the cost of livestock production.

- Introduce a tax on livestock ownership, but give rebates for efficient beef production.

- Allow the buying and selling of grazing rights. This would result in a "natural selection" among livestock farmers, allowing the best to expand and prosper.

A tax would be attached to the grazing rights, but, again, rebates would be given for efficient production.

Mr Trollope said he believed it would take a long time to change the habits of Ciskeian farmers — to encourage them to farm more efficiently and adopt methods that would not damage the veld.

But this, he said, "was the challenge for the agricultural extension officer."

Meantime, a vast, if only short term, improvement in the state of the veld could be brought about by something beyond the control of any farmer — a change in the weather.

"If we were to get 75 mm of soft, soaking rain now," Mr Trollope said, "you wouldn't recognise the veld in the spring."

## JOINT FAMINE RELIEF ACTION PLANNED

Johannesburg THE CITIZEN in English 20 May 83 p 12

[Text]

THE Eastern Cape, Ciskei and Transkei, are preparing an emergency programme to combat a possible disastrous famine this winter in the wake of the crippling drought in many areas.

In an attempt to alleviate the effects of drought during the winter and stave off the threat of famine, various country-wide organisations have launched crisis hunger relief programmes.

The Red Cross, the Institute of Race Relations through its "Operation Hunger", and World Vision, have banded together to form a committee to co-ordinate the funds made available by public response to the drought crisis.

If these organisations do not succeed in feeding millions of people, the situation will be disastrous, says Mrs Ina Perlman, organiser of "Operation Hunger".

She said the chances are that families would starve and the death rate of Black children under the age of five, which was already high, could become worse than ever.

This winter would not only be one of hunger and malnutrition among the very old and very young but also one of family

starvation.

Help on a massive scale is needed from the public, said Mrs Perlman.

Aid is already being given to Ciskei and the Eastern parts of the Eastern Cape which are among the areas hardest hit by the drought.

But some organisations, being dependent on public donations, are hampered by lack of funds and can provide only limited help.

Some Port Elizabeth supermarkets and hypermarkets have established drought collection funds through which their customers can contribute money and provisions. These are sent to "operation hunger" for distribution to the destitute in the Eastern Cape.

The Minister of Health for Transkei, Dr Charles Bikitsha, said the drought was worse than usual and the country was experiencing great food shortages.

The Government was to step up its relief programmes.

Mr T Saula, Secretary for the Department of Welfare, Sport and Cultural Affairs, said the Transkei government expected to feed one million people.

## DESALINATION PLANTS 'ECONOMICALLY VIABLE,' SAYS EXPERT

Johannesburg SUNDAY TIMES in English 22 May 83 p 3

[Article by Elizabeth Rouse]

[Text]

**SEAWATER** desalination plants are economically viable propositions for South African municipalities, and cost to users is reasonable.

So says Manie Coopmans, an expert on water-treatment plants, who has marketed and managed water-treatment turnkey projects in different parts of the world.

Speed of building a seawater-treatment plant — a large plant can be constructed in six to eight months — is a vital factor in times of drought.

■■■

Finance is another important consideration for municipalities. The package includes finance from West German banks at interest rates of between 8% and 9%, the capital repayable over 10 years.

Mr Coopmans is currently presenting full plant, plus finance, projects to municipalities such as Durban and Newcastle.

The turnkey project is based on giant US chemical group Du Pont's Permasep reverse-osmosis process.

More than 300 of these systems are in operation all over the world — in the Gulf States, the Caribbean and in the US itself.

Installation is done by West German firm Uhde (Mr Coopmans is project manager of the South African subsidiary) and Esmil of the Netherlands.

Cost of constructing a large plant capable of processing 11.4-million litres of seawater a day (equivalent to 3-million

gallons a day) would cost around R6-million.

A plant of this size can provide 28 500 families with another 400 litres of purified water a day at an extra cost of 16c a day, an extra outlay of R4,80 a month.

Durbanites are currently making do with 300 litres a day for families of under six people, and 400 litres a day for larger families.

The ration cuts down the depth of a bath drastically, limits the number of baths taken and eliminates the use of washing machines.

Mr Coopmans estimates that capital expenditure of R6-million in a desalination plant works out at a cost of R1 643 a day, equal to a cost of a mere 16c a cu m capital cost to the municipality.

Operational costs are an estimated 35c a cu m, which adds up to a total cost of 51c a cu m of purified water.

Durban's water problem, which was clearly foreseen by some water engineers decades ago, could well be alleviated as swiftly as that of Key West in Florida, US.

A 3-million-gallon plant was built in six months in 1980 when it became evident that a new 90cm, 192km pipeline from Florida City, costing multi-millions, would not be completed until 1984.

The Rand Water Board is spending R60-million on the Vaaldam-Zuikerbosch canal and pipeline system, which stretches for 30km.

Its capacity is 1 145-million litres a day to cater for the needs of the highly industrialised Witwatersrand area.

Escom has come under fire

because lack of water might cause power cuts. But Escom uses about 2% of South Africa's water. Households also take a small percentage.

Manufacturing industry, a big user, could have done much more to recycle water and so could the mines, says Mr Coopmans.

A mine can pay as much as R200 000 a month for water. On top of that, chemically polluted water has to be stored in dams, as it cannot be released in rivers or streams.

■ ■ ■

For instance, a Welkom mine bought land for R4-million to store water pumped from underground in large dams.

If mine water were to be treated by reverse-osmosis processes, it could be re-used and any surplus water sold to the Water Board, suggests Mr Coopmans.

The biggest user of water is the agricultural sector, which takes 72% of South Africa's water.

In California, the most thickly populated and industrialised western state in the US, agriculture drinks up 85% of the developed water that is consumed.

In less-industrialised western states in the US, farming takes 90% or more, and fears are growing that mid-west states will become unfarmable because water supplies are not being replaced by rains, according to a study by a leading UK financial publication.

Ultimately, it appears that governments have neglected a basic means of survival and growth — water supplies for growing populations.



## BRIEFS

NATAL POWER CUT--ANOTHER power station has been closed down because of the growing water crisis. An Escom spokesman said the Umgeni power station near New Germany in Natal stopped generating electricity yesterday. Earlier, the power station closed five of its six generating sets. It is the second power station in Natal to be closed because of the water situation--the first was the Ngagane power station in Northern Natal. The spokesman said a further cut back in electricity production at the Camden power station in the Eastern Transvaal was also likely soon. The station is now operating on three of eight generating sets. [Text] [Johannesburg THE CITIZEN in English 20 May 83 p 3]

DROUGHT AID--MAFEKENG--Bophuthatswana has implimented a R42 million drought relief programme aimed at preserving nearly half-a-million head of livestock, and financially securing 90 000 farmers. The programme went into operation on May 18, according to President Lucas Mangope. Areas hardest hit by the drought are the extreme western districts of Tlhaping-Tlharo and Ganyesa where the drought relief plan includes a major water reticulation scheme. The Minister of Defence, Brigadier H F P Riekert will be in charge of the drought assistance project, and representatives from the departments of agriculture, works and education will help in the scheme. The Agricultural Development Corporation of Bophuthatswana (Agricor) will prepare maize residue from the Ditsobotla maize district which will be sent to the stricken areas. This is expected to cost close on R2,5 million and will feed nearly 26 000 head of livestock. A temporary feedlot is to be erected and activated at Taung at a total cost of R1,3 million. Fodder and licks, subsidised by the Government, will be made available to farmers in western Bophuthatswana. About 1 500 tons of groundnut hay has already been purchased to feed nearly 2 000 cattle in Thaba'Nchu. R25 million of the R42 million will be distributed in the form of loans to private farmers. [Text] [Johannesburg THE CITIZEN in English 28 May 83 p 5]

# MBERENGWA DISTRICT RESIDENTS RECEIVE DROUGHT RELIEF

Harare THE HERALD in English 19 May 83 p 11

[Text]

**MORE** than 78 000 people in Mberengwa district are receiving drought relief, says the District Administrator, Cde Goodwell Kosa.

He told The Herald the drought had severely hit most parts of the district and "development has almost been halted".

The council had had to cut the use of water for building and "schools are mostly affected".

Several people had been caught cheating on drought relief and now records of the food distribution exercise had been introduced and "nobody can beat this system", said Cde Kosa.

"Employed people or many members of one family used to queue for drought relief. We have told all district councillors that if they are discovered registering non-recipients of drought relief they would be arrested.

"The councillors have been advised to pass this on to their people and the response has been encouraging."

The peasants were willing to work for their drought relief and "some of them had even approached us on this" before the Minister of Labour and Social Services, Cde Kumbirai Kangai, announced his "jobs-for-food" policy last week.

The district had received reports of people dying because of the drought but on investigation these were found to be false, said Cde

Kosa.

He said socialism was bound to fail in communal areas if the Government did not educate the peasants about it. Literature on socialist thinking should be made freely available.

District administrators and district councillors could be taught about socialism so they could pass on their knowledge to people, he said.

"We have noticed capitalistic tendencies in some councillors in the district. Quite a number do not have the drive to encourage self-reliance," said Cde Kosa.

The district administrator said Government funds alone were not enough for the area's many development projects.

"In this district we have no income-generating projects for the council except beerhalls. We have six of these — an unfortunate situation — so there is no other way to raise funds for development projects," he added.

People were "coming in hundreds" to register for identity cards and as voters. Some even came on Sundays, a non-working day.

The district had two mobile and one static registration units.

"Sometimes the operators cannot cope and we have applied for two more mobile units.

"People need to have valid documents for security reasons in case they travel to areas like Bulawayo.

"About 700 or more people were registered a day in the three units here."

Primary courts were popular with the people, he said, and about 100 village courts had been set up in the district. Only one community court operated and "people don't like it because it is far from them".

The community court was in Mberengwa but the people would like it moved to Mataga, the growth point of the district, which was in a much more central position.

CSO: 5000/193

## PLAN TO MOVE 270,000 CATTLE HIT BY DROUGHT UNDER WAY

Bulawayo THE CHRONICLE in English 14 May 83 p 1

[Text]

A MASSIVE operation is under way to move 270 000 cows and calves in drought-stricken areas to where there is grazing, it was reported in Bulawayo yesterday.

The operation is being undertaken jointly by the Cold Storage Commission and the Ministry of Agriculture. The cattle are to be moved to Mashonaland.

As part of a national operation to salvage the cattle industry in Matabeleland and Masvingo from the grip of drought, the CSC is also to slaughter another 500 000 cattle before the next rainy season.

## FLY OVER

The Prime Minister, Cde Mugabe, announced last month that the Government was studying how cattle would be moved from Masvingo to Mashonaland East.

Speaking at Chibi during a tour of parts of Masvingo to assess the effects of the drought, Cde Mugabe said everything possible had to be done to save the cattle.

Meanwhile, the Minister of Agriculture, Sen Denis Norman will fly over Masvingo on Monday in a mission to assess the effects of drought.

With Sen Norman will be Mr Eddie Cross, general manager of the CSC.

Mr Cross said yesterday he would be back in Bulawayo on Tuesday with their findings.

Meanwhile, according to Beitbridge District Administrator Cde Harold Sibanda, more than 40 cattle are dying every day in the district, which is experiencing its third successive season of drought.

Although the residents are well-supplied with water storage tanks throughout the district, almost the whole of the area's herd is competing for scarce grazing land in Diti-Chipise communal land.

The Veterinary Department estimates that 19 885 cattle are now grazing on the limited pastures in Diti-Chipise.

According to the Met Department, the whole of Beitbridge has received a meagre 42.65 mm of rainfall since October last year.

As a result, grazing pastures have been devastated and the herd depleted, Cde Sibanda said.

In Siyoka communal land, thousands of cattle drink water from the Zezani pipe scheme which is fed from the Umzingwane River.

The Cold Storage Commission estimates that the Mwenezi-Beitbridge area contains more than one third of the national herd.

## BRIEFS

**PLANS TO SAVE CATTLE--BULAWAYO--**THE Cold Storage Commission plans to save half the cattle in drought-ravaged provinces of Matabeleland and Masvingo by the end of the winter, spending \$1 million a week buying them and transporting them to CSC feedlots and ranches, the CSC general manager, Mr Eddie Cross said here, yesterday. Mr Cross was speaking in an interview on his return from a three-day tour of Masvingo, during which he and the Minister of Agriculture, Senator Denis Norman assessed the severity of the drought in the province. Mr Cross said 6 500 head of cattle were being moved each week to Mashonaland and the west of Matabeleland South and by the end of winter 270 000 head will have been bought and moved. A further 230 000 cattle from the drought-stricken areas would be slaughtered, making a total of half a million or 50 percent of all cattle in the two provinces. From the communal lands the CSC was buying 3 500 head a week and from the commercial lands 3 000 head were being bought. The CSC was expecting de-stocking in the communal lands to be between 70 and 100 percent with some areas left without any cattle at all by the end of the winter. [Text] [Harare THE HERALD in English 20 May 83 p 1]

**DROUGHT THREATENS TIN OUTPUT--**ANOTHER important mine in Zimbabwe, the Kamativi tin mining complex on the Gwai River near Hwange, is suffering from lack of water. Its problems are similar to those now being experienced by the Dorowa phosphate mine which has had to cut production following the lack of water in the Sabi River, as reported in The Gazette last month. The Kamativi tin mine also needs to draw a large quantity of water from the Gwai River in order to process the tin ore in slurry form. However, as the Gwai River has dried up during the present drought the mine is having to depend on a large pool, or dam, which at present holds just sufficient water to enable production to continue. "But, like everyone else in the country we are worried that water supplies may run out before the next rains," said a spokesman for the Kamativi mine this week. He said that the mine is continuing to operate normally at present. But water is being rationed throughout the Kamativi mining town complex which officially houses about 7 000 people including families of the mine workers. "We are running at our normal production level of about 1 000 tonnes a month and trying to conserve water as much as possible in the township," said the spokesman. "We estimate that there should be enough water in the river pool to last until August to September. by then we may have to think again unless we get sufficient rain to start the river flowing again." The Kamativi mine produces about 12 000 tonnes of tin a year, a valuable export in terms of foreign currency at present tin prices ruling abroad. [Text] [Harare THE FINANCIAL GAZETTE in English 13 May 83 p 1]

CATTLE SALVAGE PLAN--HARARE--The Zimbabwe Cold Storage Commission plans to save half the cattle in drought-ravaged provinces of Matabeleland and Masvingo by the end of the winter, spending some R1, 1-m buying them and transporting them to CSC feedlots and ranches, the commission's general manager, Mr Eddie Cross, said in an interview in Harare yesterday. Mr Cross was speaking-on his return from a three-day tour of Masvingo, during which he and the Minister of Agriculture, Senator Denis Norman, assessed the severity of the drought in the province. Mr Cross said 6 500 head of cattle were being moved each week to Mashonaland and the west of Matabeleland South, and by the end of winter 270-000 head would have been bought and moved. A further 230 000 cattle from the drought-stricken areas would be slaughtered, making a total of half a million, or 50 per cent of all cattle in the two provinces. The CSC was expecting destocking in the communal lands to be between 70 and 100 per cent with some areas left without any cattle at all by the end of the winter. [Text]  
[Johannesburg THE CITIZEN in English 21 May 83 p 13]

CSO: 5000/190

## SOVIET SUPPORT OF GLOBAL ENVIRONMENTAL MONITORING

Moscow NEW TIMES in English No 20, May 83 pp 22-24

[Article by Mikhail Kokin]

[Excerpts]

**To Study and Foresee**

In 1980 the Soviet Union adopted new laws on protection of the atmosphere and the protection and utilization of the animal kingdom. We have 136 state preserves and hunting reservations, seven national parks and 4,000 protected natural sites such as caves, waterfalls and geysers. In 1981 a Commission of the Presidium of the U.S.S.R. Council of Ministers for Environment Protection and Rational Utilization of Natural Resources was established. In the 11th five-year-plan period seven nationwide scientific and technical programmes for nature protection are being carried out. Some 30 billion rubles will be allocated for the protection of the environment.

The results are already making themselves felt. In the first two years of the current five-year-plan period the release of sewage into surface water decreased by almost two cubic kilometres and the ejection of noxious admixtures into the atmosphere, by one million tons.

World experience shows that the utilization of natural resources is, on the whole, extensive in character. The losses of minerals in the process of extraction, processing and utilization in the majority of industrially developed countries reach one third and sometimes even more of the overall volume involved in production. The organization of ecologically safe, wasteless or, to begin with, low-waste industries would make it

possible to stop the depletion of natural resources and the dangerous pollution of the environment.

In the 11th five-year plan provision is made for supplying industry with water primarily through water recycling and re-use systems. The volume of recycled and re-used water in industry will amount to 71.5 per cent. The U.S.S.R. State Planning Committee has endorsed a programme for the comprehensive development of the principal types of mineral resources envisaging measures to improve the extraction and utilization of minerals.

We also have a nationwide research and development programme for devising new production processes ensuring maximum utilization and decontamination of industrial waste and household garbage. It will make it possible to increase by 1985 the share of the utilization of slag of the nonferrous metals industry to 21 per cent of their total amount, that of phosphogypsum to 20 per cent, and that of the ash and slag waste of thermal power stations to 95 per cent. The economic returns from the implementation of the programme are estimated at an eventual 250 million rubles.

Considerable experience has been accumulated by Soviet specialists in studying the dynamics of the natural environment (monitoring). We have an effective countrywide system of monitoring the level of environment pollution. It embraces more than 450 cities, about 1,900 rivers and

lakes, all inland seas and those washing our frontiers, as well as the soil and forests of regions where chemicals are used. The service has automated control systems, itinerary laboratories for ascertaining the quality of the atmosphere and surface bodies of water, and other research equipment for studying the biosphere.

Obviously, the effectiveness of environmental protection depends first and foremost on national efforts, on the activity of the population at large, on the political will of the leaders of every state. But this problem cannot be solved by the efforts of any one country, however large. The protection of the environment calls for the joint efforts of all mankind.

In recent years the Soviet Union has advanced a number of proposals aimed at developing large-scale international co-operation in this field.

### Integrated Monitoring

Soviet scientists believe that today there are sufficient scientific and methodological prerequisites for establishing a global system of integrated monitoring of the environment and the ecological consequences of its pollution. More, the need for such a programme has become imperative, for without comprehensive information it is difficult to take effective measures to protect the environment.

Not long ago the Soviet Union proposed in UNEP (U.N. Environment Programme) that at the first stage approximately 50 integrated ecological monitoring stations be set up. This system is to include the already existing stations of the World Meteorological Organization for monitoring the pollution of the atmosphere, whose observation and research programmes are to be extended. It is also possible to use some stations in biosphere reserves, which began to be set up in 1970 within the framework of the UNESCO Programme "Man and the Biosphere." The Soviet Union has proposed holding in our country the First International Congress on Biosphere Reserves. With the approval of UNESCO and UNEP, the congress will be held in Minsk in

October 1983. Specialists from different countries will sum up the results of ten years of the development of biosphere reserves, exchange experience and work out recommendations for the further development of protected areas in the world.

A European monitoring subsystem could become an important link in the future network of stations. Its establishment is provided for in the Convention on Long-Range Transboundary Air Pollution which was adopted in 1979 at the High-Level Meeting on the Protection of the Environment in Europe and which entered into force in March this year. Operating in accordance with the convention are the East European (in Moscow) and West European (in Oslo) meteorological centres processing information coming from most European countries.

A system of control over changes taking place in the seas and oceans should become a part of ecological monitoring. This is essential for understanding the interaction between the oceans and the atmosphere and for studying the impact of environmental pollution on the ecosystems of the World Ocean.

The questions discussed at the High-Level Meeting included that of developing low and non-waste industries. A special declaration adopted on the initiative of the U.S.S.R. envisages co-operation of the European countries, the United States and Canada in the development of such industries. In order to activate co-operation, last February the U.S.S.R. proposed in the U.N. Economic Commission for Europe that an international seminar on low-waste technology be held. The proposal was approved unanimously. The seminar will be held in Moscow next year.

Much interest was aroused among the commission members also by the Soviet proposal that a long-term environmental protection strategy for the European countries be worked out for the period up to the year 2000 and beyond it. In submitting its proposal, the Soviet Union proceeded from the fact that many countries have already accumulated experience in elaborating long-term



plans and forecasts in the sphere of environmental protection. In our country, for instance, questions of environmental protection constitute a special section in the Guidelines for the Economic and Social Development of the U.S.S.R. for 1981-85 and for the Period Ending in 1990. They are also included in the comprehensive programme of scientific and technical progress for the period up to the year 2005 which is being drafted now. The countries of the socialist community have also defined the Guidelines for the Co-operation of the CMEA Countries in the Sphere of Protection and Improvement of the Environment for the Period Ending in the Year 2000.

### **Remove the Main Threat**

To be sure, the efforts of scientists, the public and governments to protect the human habitat will be wasted if the main danger to life on our planet—the arms build-up and primarily nuclear arms build-up—is not eliminated. All the more so since the reduction of military budgets would release vast means for the implementation of the most humane task facing mankind—conservation of nature.

Every year \$650 billion is spent for military purposes, and this at a time when 1.5 billion people are denied proper medical care, almost 3 billion have no access to pure water, and 40 million, half of them children, die every year from hunger and malnutrition.

Numerous research projects have shown that military production pol-

lutes the environment far more than the civilian sectors of the economy do. It involves, as a rule, the use of fissionable materials, heavy metals, and chemicals. In the United States, for instance, 80 per cent of all toxic liquid waste is ejected by the munitions industry.

On the initiative of the Soviet Union, the 35th and 36th sessions of the U.N. General Assembly adopted resolutions on the Historical Responsibility of States for the Preservation of Nature for Present and Future Generations. In order to gain a deeper understanding of the interconnection between the environment and the arms race and the impact of certain weapons on the biosphere and climate, the Soviet Union proposed including a special section on The Arms Race and the Environment in the U.N. environment programme for 1984-89 worked out by UNEP.

The initiatives of the Soviet Union and other countries of the socialist community have played an important role in securing the adoption by the 37th General Assembly of the World Charter for Nature, which places on all states a responsibility for the preservation of our planet and its riches. The 11th session of the UNEP Governing Council is meeting in Nairobi over May 11-24. The Soviet Union trusts that it will adopt new important decisions in defence of Nature.

## PROTECTING LENINGRAD FROM BALTIC SEA FLOODING

Moscow IZVESTIYA in Russian 10 Apr 83 p 3

[Article by V. Zakhar'ko, special IZVESTIYA correspondent: "Leningrad is Protected from Flooding"]

[Text] Judging from many years of data, now, in the springtime, as well as in the summer, it is not expected that Leningrad will be threatened by the natural elements. Usually large floods attack the city in the fall and winter season, when the Baltic Sea is located in the zone of the most powerful cyclones coming from regions of the Atlantic.

Last year alone, onslaughts of high water disrupted normal living conditions in the city five times and caused considerable material damage. It is likely that this situation will be repeated more than once, but now the number of floods will not be infinite because the time is drawing nearer when Leningrad will have a reliable shield against the elements.

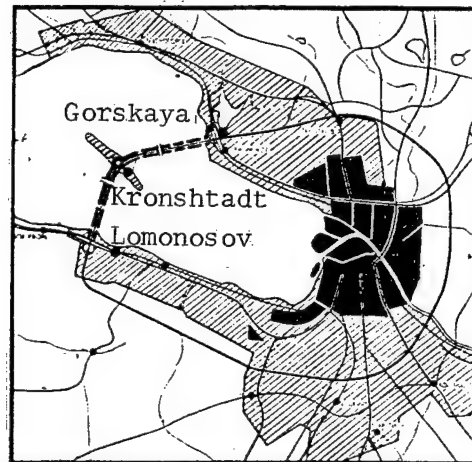
Large collectives of planners and builders and dozens of industrial enterprises are more and more active in developing work to fulfill the decrees of the CPSU Central Committee and the USSR Council of Ministers "On the Construction of Structures to Protect Leningrad from Flooding". Covering a distance of 25.4 km, the complex of these structures will dam up the Gulf of Finland when the waters rise sharply and will protect the mouth of the Neva from destructive waves. Included in the complex will be stone and earthen dams, locks to let water and vessels through, and a highway for motor vehicles that will become an integral part of the ring highway around the city.

Two and a half years ago the first stone was thrown into the gulf with the inscription, "We will protect Leningrad from flooding." Since that time, at several starting sites, including Kotlin Island where legendary Kronstadt stands, hundreds and thousands of meters of stone foundations for dams are laid along the swampy bottom of the gulf. Day and night dump trucks, excavators, bulldozers and mechanical road rollers meet each other. A total of over 11 million tons of stone and road metal, more than 52 million tons of sand and sand-gravel foundations and a huge mass of concrete and reinforced concrete will be used in building the structures and in various auxiliary projects.

The unique complex was named an All-Union Outstanding Komsomol-Youth Construction Project. Its problems and concerns will be at the center of attention of the Leningrad city party organization. Many planning and scientific research institutes have been drawn into resolving complex problems tied to the preservation and protection of the hydrological and biological systems of the Gulf of Finland, the Neva and Lake Ladoga.

The state has allocated a great deal of funds for the erection of this shield and this investment is justified. By creating normal living conditions for Leningrad residents, the complex of protective structures will preserve the immense material, cultural and historical valuables of the city.

Shown in the illustration is the plan for the protective structures.



9667  
CSO: 5000/123

## TSUNAMI HITS UNFOREWARNED MARITIME KRAY

PM080930 Moscow SOVETSKAYA ROSSIYA in Russian 5 Jun 83 First Edition p 1

[Own correspondent V. Sungorkin Report: "Tsunami: An Unexpected Blow"]

[Summary] Maritime Kray -- "...An earthquake which occurred on the shores of Japan has caused great misfortunes there. At the same time it gave rise to tsunami waves, several hundred kilometers long, which rushed toward the mainland with the speed of a jet aircraft. These waves are treacherous! They arise in the ocean during earthquakes and underwater eruptions and have an enormous destructive force. Out at sea they do not present any danger, they are simply not noticeable. The destructive waves inspire terror on the shores and in shallow water....

"Only precision instruments can register them and sound the alarm. Such a tsunami warning system exists on the Soviet Pacific coast. But it had been thought that tsunamis present no threat to the Maritime Kray, and moreover they had not occurred there in living memory. By a very rare coincidence of circumstances, the tsunami surged from the Japanese islands toward the Maritime Kray."

The director of the Valentin Fish Factory got the first indication of what was to come when he was told around 1500 that water was rushing out of the bay. Immediately all ships were ordered out to sea. Three minutes later the water surged back into the bay. A senior mate was washed overboard, a seiner ran aground, and another seiner and a tug were washed ashore. The waves kept battering the bay until evening. In Vladivostok the "MS Ilich" was ripped from its anchor. But the Kamenskiy Fish Factory in the north of Maritime Kray took the heaviest toll. The moorings there are not in a bay but on the banks of a river near the estuary. When the water rushed out, it caused mooring cables to snap. One ship collided with a coal scow, another was washed up on a sandbank.

"Staffs were set up in the kray immediately to deal with the natural disaster and they promptly organized the elimination of its consequences. I telephoned the affected enterprises. Life has returned to normal everywhere and all shops are producing.

"It is difficult to blame the meteorologists who did not issue an advance warning of the trouble for, I repeat: Up to now it was thought that the shores of Maritime Kray were safe from such a calamity. Specialists are now studying what has happened, and questioning the eyewitnesses to this rare phenomenon (in some settlements they claim that the water receded from the shore by 100-150 meters and then rushed up 200 meters inland in the flattest spots). The height of the waves is described as being up to 8 meters. Experts in natural disasters are comparing, clarifying and analyzing all these accounts (which may at times be exaggerated) and drawing conclusions for the future."

CSO: 5000/135

SEVERE WEATHER CAUSES DAMAGE TO CROPS, HOMES

Mudslide in Tajikistan

LD081752 Moscow Domestic Television Service in Russian 1300 GMT 8 Jun 83

[From the Vremya newscast]

[Text] In the Kuybyshev Rayon of the Tajik SSR, a mud avalanche has afflicted settled areas and washed away houses, causing damage to agricultural crops. Now, looking at the absolutely calm flow of the Yavansu, it is difficult to imagine that today, just a few hours ago, its waters had such destructive power. Swollen with precipitation four times the norm for 10 days for Yavan Rayon where the torrent began, the Yavansu spilled over its banks, washed away a dam, and deposited tons of silt and clay on the on the nearby farmsteads of the Moskva kolkhoz and the 25th Party Congress sovkhoz. Even the old inhabitants of the rayon cannot recall anything like it.

In one night, the mud destroyed houses and damaged more than 300 hectares of cotton and about 150 hectares of feed land. However, the calamity did not take people unaware: A rayon headquarters to combat the elements was organized efficiently, equipment was brought out, and in just 2 hours the break in the dam was eliminated. [video shows men, machinery rebuilding river banks] The people suffering from the floods received emergency help -- all inhabitants of the villages came out to help to remove things from the destroyed houses, to give refuge to the women and children. Families who suffered from the floods are now housed in the rural club, kindergarten premises, and in specially brought-in tents. [video shows destruction; damage done to houses, fields; rescue operations]

The rayon headquarters is doing everything it can to provide people with permanent housing. The Tajik cottongrowers have accumulated great experience in cultivating their crops in the most difficult weather conditions. Thus, the working people of the villages of Kuybyshev Rayon, despite the caprices of nature, plan to hand over to the homeland 45,000 tons of cotton.

## Rain, Hail in Azerbaijan

LD082344 Moscow Domestic Television Service in Russian 1700 GMT 8 Jun 83

[From the Vremya newscast]

[Text] Heavy torrential rain and hail storms have occurred in the western parts of Azerbaijan. Great losses have been inflicted on the republic's farms. [video shows damaged crops, piles of large hail] As the clouds rushed low over the fields, they rained down hailstones that reached the size of an egg. The soil was covered in places with a layer of ice up to 5 cms thick. Roads were washed away and many residential and farm buildings were ruined. [video shows damaged roads, buildings] Vineyard plantations, graincrops, vegetables and feeds have been damaged over an area of almost 5,000 hectares. Operational headquarters have been set up to repair the damages of this natural calamity and rehabilitation work is being carried out. The growers are putting the grapevines back on to their trellises and are restoring flattened crops. [video shows rescue operations] Scientists and workers of establishments and enterprises in nearby towns have come to the aid of the rural inhabitants.

CSO: 5000/137

USSR

GEORGIAN VINEYARDS, CORN HIT

LD071509 Moscow Domestic Television Service in Russian 1300 GMT 7 Jun 83

[From the Vremya newscast]

[Text] Torrentially heavy rain and hail have fallen in northern regions of Georgia. In Kakhetiya, June is the month when the vine begins to strengthen. The vine leaves are turned toward the hot sun which fills the still-green clusters of grapes with juice. Yesterday, one could hardly have imagined that the cloud which crept up from behind the Gomborskiy ridge would do so much damage: 200,000 hectares of land, given over not only to unique varieties of grapes but also to orchards, graincrops and perennial crops, were ruined [sokrusheny] by the rain in 20 minutes.

A storm front tens of kilometers wide flung first hail then torrents of water upon the ground. The corn was almost man-high. In a day or two it would have been possible to begin the apricot harvest. It is hard to believe that the biggest artery of an irrigation system ran through here, lined with concrete slabs. [screen shows shots of damaged vineyards, corn fields, fruit trees and irrigation canals]

But the greatest losses are in the vineyards. This autumn they will provide no Manavi, Tskhatsitoli, Sarakych or Khaley [wines]. But the injured vines are also urgently in need of help.

Party and administrative organizations have mobilized people to deal with the consequences of the weather.

CSO: 5000/137

# USSR, RSFSR CONSERVATION CONFERENCES

## Residential Construction Norms Reviewed

Moscow SEL'SKAYA ZHIZN' in Russian 13 May 83 p 2

[Text] The regular meeting of the USSR Council of Ministers Presidium Commission on environmental protection and rational use of natural resources was held 12 May.

The commission examined measures adopted by Gosgrazhdanstroy concerning nature protection during drafting of standard documents concerning residential construction, general plans of towns and rural settlements and drafts of detailed planning and building up of residential regions.

Gosgrazhdanstroy was commissioned to accelerate review of obsolete standard documents with consideration of the achievements of science, technology and advanced know-how concerning nature protection and also to intensify the checking of implementation of general plans for towns and rural settlements and realization of environmental protection measures provided in them.

A.K. Mel'nichenko, Minister of the Medical Industry, reported to the meeting on the work of the Ministry of the Medical Industry concerning introduction into production of low-waste and, wherever possible, waste-free technological processes and reduction of harmful emissions into the atmosphere by subordinate enterprises.

The commission promised the Minister of the Medical Industry that emergency steps would be taken to eliminate deficiencies.

The problem of increasing protection for and reproduction of wild animals and plants listed in the USSR Red Book was discussed. The recently adopted USSR Council of Ministers decree "The USSR Red Book" is extremely important in regard to this matter.

The USSR Ministry of Agriculture, the USSR Ministry of the Fishing Industry, the USSR State Forestry Management, the USSR Academy of Sciences and Councils of Ministers of union republics were charged to implement measures to protect rare animals and plants of the country and to complete, quickly, tasks assigned by this decree.



## Protecting Resources of the Far North

Moscow SOVETSKAYA ROSSIYA in Russian 4 May 83

/Text/ A draft of a complex program for improving the maintenance and rational use of nature on newly developed territories in regions of the Far North was considered at a meeting of the RSFSR Council of Ministers Presidium Commission on environmental protection and rational use of natural resources. Commission members, representatives of different ministries emphasized during discussions, that extreme caution must be taken in dealing with the vulnerable nature of these places. The program sets tasks for protecting the atmosphere, waters and land, forests and animal world and establishes amounts of capital investments for implementing these measures. Specific recommendations were made to industry concerning the necessity to shift to the new waste-free technology of production, especially in Norilsk, and concerning the need for review of the lumber raw material base, the use of hardwoods and concerning the prohibition of superfellings in lumbering operations.

The program provides for elimination of hazardous industrial emissions into reservoirs, for the shift of the timber exploitation area to the south, for an increase of the number of nature preserves by organizing sanctuaries and reservations and many other measures. It was proposed that Gosplan RSFSR, the Ministry of Reclamation and Water Economy, the Ministry of Forestry and the FSFSR Council of Ministers Main Administration of Hunting consider the measures proposed by the complex program in the development of drafts of annual plans for protecting nature and providing for rational use of natural resources and of plans for the 12th Five-Year Plan and subsequent Five-Year plans.

2791

CSO: 5000/115

## RESEARCH ON ECOLOGICAL PROBLEMS OF ARAL SEA

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 1 Apr 83 p 4

/Article entitled "The Aral Takes an Examination" by B. Samoylenko, Head of the Department of the Council on the Study of the Productive Forces of the KaSSR Academy of Sciences/

/Text/ Scientific and technical progress gives man the capacity to affect nature greatly. This sometimes produces very unfortunate after-effects. The fate of the Aral sea is a clear example of this. The Aral sea level has dropped significantly as the result of intense opening up of new irrigated areas and the increased use of the waters of the Amu Darya and Syr Darya rivers. The natural potential of the Aral sea region has deteriorated greatly.

This is especially noticeable in the Kara-Kalpak ASSR and in Kzyl-Orda oblast in Kazakhstan. In recent years the Aral sea shoreline has receded by 10 to 20 kilometers and, in some places, by 60 kilometers. Animal husbandry and hunting have deteriorated; hay meadows and pastures died off and reeds overgrew them. The water became more brackish and natural fish spawning grounds became scarcer. Some island fish factories and individual fish farms had to be eliminated because of the great reduction in catches. Industry in the coastal regions and shipping have suffered considerable damage. Some people have been forced to change professions while others are migrating from their homes. Therefore, the Aral problem has become a social problem equal in importance to the economic problem concerning it.

However, the ecological aspects of the drying up of the Aral sea present the greatest problem. With the reduction of its water area, it will, in the future, stop ameliorating the climate of the neighboring areas, especially in summer. The frost-free period is being shortened and there is a possibility of earlier autumn and later spring frosts. With the retreat of the shoreline, the salt settling on the bottom dries up quickly and is carried by the wind to the surrounding fields and even to rather distant areas. We must emphasize especially that these changes will occur near the northern boundary of the cotton growing area where climatic conditions are questionable even without this complication.

The prospect of the complete disappearance of the Aral sea is tenable from the point of view of those investigators who assume that the Aral may be sacrificed to the needs of irrigated agriculture. Actually, the national profits derived from irrigating lands with waters from the Syr Darya and the Amu-Darya are many times

greater than profits derived from fishing and shipping. However, the overall natural and economic consequences of the complete disappearance of the Aral can not yet be determined fully. We must also consider the moral responsibility of our generation for the preservation of this unique natural region.

Therefore scientists of Kazakhstan, Uzbekistan, the RSFSR and other republics of the country are working to lessen or eliminate the harmful effects from the changes occurring in the Aral sea region. These scientists are seeking optimum regulation of the water balance of the reservoir and prevention of the desertification of the Aral sea region.

The most complete historical account about the Aral sea is found in L.S. Berg's book "The Aral Sea", published in 1908 in the form of an account of the Turkestan department of the Russian Geographical Society. Studying Arabian and Khiva sources, L.S. Berg concluded that, up until and in the beginning of the 13th century, the Amu Darya flowed into the Aral sea but, later, the waters of this river flowed through the Sarakamysh depression along the ancient Uzboy dry river bed into the Caspian sea. The area of the Aral sea was much smaller at that time. In the second half of the 16th century, the water flow along the Uzboy dry river bed stopped and the Amu Darya again began to flow into the Aral sea.

The level of the Aral sea fluctuated even after this. In low-water periods, it fell to three meters and, in high-water periods, excess water even flowed through the Sarakamysh depression into the Caspian sea. Thus, for example, great drops were noted in the 1820s and the 1860s. After 1880, they were not observed again for 80 years. The rapid reduction of the level of the Aral sea beginning in 1961 can be attributed to both economic and natural causes. With the rapid development of irrigation, the waters of mountain rivers began to be "used up" even before they were discharged into the Syr Darya. Part of the Amu Darya flow is diverted into the irrigation zone of the Kara-Kum and the Amu-Bukhara canals. The run-off waters from the fields do not flow into the Aral sea but are discharged into Sarakamysh hollow (Turkmenistan) and Arnasay depression (Uzbekistan).

Drying up of the Aral sea also changes the ground waters regime. In some regions around the Aral sea, they stop and peter out and, in others, they do not reach the retreating sea and are evaporated completely.

According to scientific predictions, the area of the sea will decrease two-fold and its volume will decrease three-fold by the year 2000. It will separate into two bodies of water consisting of a small sea of nearly 30 cubic kilometers and a large sea with a volume of 270 cubic kilometers. The large seas will have two parts, a deep-water western part and a shallow-water eastern part. They will be joined by a narrow strait between Vozrozhdeniye island and Kulanda peninsula. The small sea will be separated in the region of Kokaral island and Berg strait.

Scientists believe that, in order to retain the importance of the forming reservoirs in the fishing economy, the mouth of the Syr Darya must be moved a little to the north of the eastern cape in Berg strait in order for it to flow into the Small Aral. In order to store the river drainage and the irrigation drainage waters from the Kazalinsk massif, a dam must be built in Berg strait. Engineering

reconstruction of the water area will make it possible to create favorable conditions for breeding fish which are resistant to salt.

Another fish industry reservoir may be created if you take part of Adzhibay bay and feed the Amu Darya discharge into it by means of a discharge regulating installation. The water surpluses will be diverted into the western deep-water part of the sea.

The discharge regulating installations will make it possible to freshen the water in the reservoirs since the water newly flowing into them will be fresher than the discharged water. Thus the present-day Aral will be transformed into two slightly saline reservoirs, the biological productivity of which, considering the heat resources, may be extremely high. These measures are being worked out at the USSR Academy of Sciences Institute of Geography and the USSR Academy of Sciences Institute of Water Problems, the KaSSR Academy of Sciences, the USSR Ministry of Water Conservancy and design institutes of the country.

In order to prevent desertification of the Aral region, it is necessary to divert part of the drainage of Siberian rivers to this area. This will replenish water deficits in this zone and will make it possible to irrigate new lands since, in the ancient and modern delta of the Syr Darya, millions of hectares of land are suitable for cultivating rice, melons and fodders. Irrigation interceptor ditch networks are needed in the Amu Darya and Syr Darya delta. They will make it possible to create large irrigated tracts, hay meadows and pastures, to restore delta lakes and "dried up" river channels and to organize restricted areas and preserves for protection and preservation of the plant and animal world.

Considering the fact that the escape of salts from the dried up parts of the Aral sea presents a serious problem, measures are being taken to retain them. In the first 3 to 5 years after retreat of the sea, luxuriant development of salt-wort appears on the dried surface of the bottom and this then changes to desert vegetation. Considerable areas of the drying out bottom may have no vegetation. In these areas, sandhills form and bits of earth and salt are carried away. Now there are promising methods for fixing the afforestating the drifting sands. They are used extensively on the bare bottom areas. Pastures will appear where the desert vegetation now grows. However, considering the fact that these pastures will include some scarcely edible plants, especially salt-wort, the effectiveness of these measures will be low. After reclaiming the land of the dried up zone, they might be used to cultivate cotton, rice and other crops. Measures to anchor the drained bottom must be started as soon as possible.

Kazakhstan and Uzbekistan scientists of different specialties are involved in the fate of the Aral sea and the area adjacent to it. Therefore, in compliance with a proposal of a commission on problems of the Aral sea of the KaSSR Academy of Sciences, it was decided to create in the Eastern Aral Region, a special station with a network of fixed institutions including those in Karakalpak ASSR for the complex study of processes of desertification and for development of measures of control of it and for checking the effectiveness of the measures conducted.

2791

CSO: 5000/114

PARTY OFFICIAL ON RSFSR PLANS FOR PROTECTION OF NATURAL RESOURCES

Moscow SOVETSKAYA ROSSIYA in Russian 18 Feb 83, p 1

[Article by L. B. Yermin, first deputy chairman of the RSFSR Council of Ministers: "In Cooperation With Nature"]

[Text] The Commission of the Presidium of the RSFSR Council of Ministers for Environmental Protection and Efficient Utilization of Natural Resources began its work last year. The editorial staff asked the chairman of the commission, the first deputy chairman of the RSFSR Council of Ministers, Lev Borisovich Yermin, to discuss its work and the main areas of the protection of nature in the RSFSR.

First of all one should note that the protection of nature in Russia has its own peculiarities. The RSFSR has more than 90 percent of the water and timber resources and 75 percent of the hydraulic energy resources of the country as well as most of the mineral supplies. The republic is continuing to form extremely large territorial production complexes such as the Timano-Pechora, the Western Siberian, the Kansk-Achinsk, the Sayansk and the Southern Yakutsk. The construction of the BAM predetermined the economic assimilation of a territory of about 1.5 million square kilometers. The increased development of productive forces in the regions of Siberia and the Far North creates a number of ecological problems, for the nature of these regions, because of the severe climate, has a limited capability of self-restoration. On the territory of the RSFSR there are also other natural and climatic zones with all their diversity of the vegetable and animal world. And such bodies of water with unique natural complexes as Lakes Baykal, Ladoga and Onega! They require especially constant attention and concern.

The commission was formed in order to further improve state control of environmental protection and efficient utilization of nature, and is called upon to provide systematic control of the course of the fulfillment of the decisions of the party and government regarding these issues as well as the implementation of a unified scientific and technical policy regarding the protection and efficient utilization of land and its minerals, water resources, the atmosphere and the animal and vegetable kingdoms as well as reproduction of natural resources and improvement of man's environment. It should be especially emphasized that the commission's decisions regarding questions within its competence are mandatory for fulfillment by all ministries and departments of the RSFSR, the councils of

ministers of the autonomous republics, the ispolkoms of the local soviets of people's deputies, and also organizations, enterprises and institutions, regardless of their departmental jurisdiction.

At its meetings the commission considers the large problems of transforming nature, the practice of applying environmental protection legislation, the observance of ecological requirements when designing territorial production complexes, constructing, renovating and operating industrial, agricultural and other enterprises, land reclamation and hydraulic engineering structures, and many other issues. As you can see, the range of problems that are solved is fairly broad.

A most important task is protection of the water and air basins from pollution with industrial wastes. During the past five-year plan and the beginning of the current one, construction of water purification installations has proceeded more rapidly and in considerably larger volumes than previously--those that have been put into operation can handle 37.4 million cubic meters a day, and the water recycling systems can handle 57.8 million cubic meters. Along with other measures, this has made it possible to considerably reduce the discharge of unpurified waters and to improve the quality of water in the Volga, Oka, the Upper and Middle Ob' and other rivers. During 1976-1982 installations were constructed for removing harmful substances from discharged gases and decontaminating them. These have a capacity of 135.9 million cubic meters an hour. We are beginning to assimilate reduced-waste and waste free technological processes that make it possible not only to avoid pollution of the environment, but also to utilize secondary resources and byproducts more fully.

In agriculture and forestry they have begun to apply more extensively soil protection measures and biological methods of fighting against pests and diseases of plantings and perennial plantations. Among the positive results one must include the fact that in the RSFSR as a whole we have eliminated the disparity between felling and restoration of the forest. As for the animal kingdom, the number of individual industrial kinds of animals has also increased.

More than 10 years have passed since the day the CPSU Central Committee and the USSR Council of Ministers adopted the decree on measures for preventing pollution of the basins of the two largest rivers of Russia--the Volga and the Ural, and during that time a good deal has been done. More than 500 water protection facilities have been put into operation at industrial enterprises as well as more than 30 complexes of purifying installations with biological purification of wastewaters. But there is still a good deal to do. The capital investments that are allotted are still not being fully assimilated and the construction of these facilities is proceeding slowly in Kineshma, Murom, Pavlov, Tambov, Engels and several other cities.

The Commission has also taken over permanent control of the fulfillment of the decree of the RSFSR Council of Ministers for strengthening the protection of small rivers. SOVETSKAYA ROSSIYA has repeatedly discussed its problems in its articles and it is gratifying that the public is actively participating in solving them. The results of the work that has been done are in evidence.



Thus in the Chuvash ASSR alone in 1982 through the efforts of kolkhozes, sovkhoses and water management and forestry organizations, along the banks of small rivers, ponds and other bodies of water, on the territory of animal husbandry complexes and farms they planted 16.6 million trees and bushes, constructed 174 dams, constructed 12,500 mesh and fascine embankments, conducted work for planting meadows on 6,500 hectares of eroded slopes and carried out a number of other anti-erosion measures.

The Samovetskiy, Kaverinskiy and Shmarovskiye rural soviets of Voronezh, Lipetsk and Tambov oblasts have come out with a good initiative for bringing order into the water protection zones of small rivers. This initiative was published in SOVETSKAYA ROSSIYA on 13 April 1982 and found broad support in Altay Krai and Rostov, Smolensk, Orel, Chelyabinsk, Kemerovo and a number of other oblasts. Thus in Rostov Oblast alone last year about 2 million man-days were spent in improving small rivers, ravines, gullies and other natural protection sections through efforts of the public.

There is progress, and it is appreciable, but it would be too early to speak about a good situation. Far from all enterprises, departments or even entire branches are fulfilling the established norms and there are frequent violations of environmental protection legislation, so that there are still many shortcomings; and they are at the center of the commission's attention.

The main polluters of the rivers and other bodies of water are enterprises of the USSR Ministry of the Timber, Pulp and Paper, and Wood Processing Industry, Ministry of the Chemical Industry and Ministry of Ferrous Metallurgy, and a number of other ministries and departments.

There is a danger, and a great one, of polluting bodies of water with wastes from agricultural animal husbandry complexes, farms and poultry farms. Since they are organic fertilizer, these wastes should go onto the fields and work for the harvest.

Since there are quite a few cases of pollution of the rivers and other bodies of water with organic fertilizers, the commission has made it incumbent on the RSFSR Ministry of Agriculture, the RSFSR Ministry of Water Management and the RSFSR Ministry of Public Health, in conjunction with the councils of ministers of the autonomous republics, krayispolkoms and oblispolkoms, to inspect for the observance of technology for removing manure at large complexes and farms and to develop measures for efficient utilization of manure and manure-containing wastewaters as a valuable organic fertilizer.

There is still a good deal to be done for protecting the air basin. The commission's work plan has earmarked consideration of questions regarding improving condition of the air basin in the cities of Murmansk Oblast, Bratsk, Cherepovets and others.

We are also disturbed about the condition of agricultural land. One-fourth of it has been subjected to water and wind erosion. In many regions the continuing growth of ravines is causing harm to farming.

Industry is also indebted to the farmers. Its workers sometimes forget that, having been able to use the land temporarily, they should then return it to the kolkhozes and sovkhozes and, of course, not with useless ravines or gaping mines, but restored to fertility. This is now the picture: in spite of the increased volumes of recultivation of damaged land, there is still a great difference between areas that have been worked and those that have been restored. Many enterprises do not fulfill the plans for recultivation. For example, in one of the decisions of the commission it is noted that under the 10th Five-Year Plan enterprises and organizations of the RSFSR Ministry of Highways has damaged about 48,000 hectares and has recultivated only 39,000, which has led to a considerable increase in the area of damaged land.

Of course there are also more than a few positive examples. If one is to speak about intelligent utilization of natural resources and its advantage for the national economy, it is appropriate to speak of the Zaton experimental demonstration timber enterprise in Gorky Oblast, whose practice was recently approved by the commission.

This enterprise, in addition to successfully carrying out the basic tasks for preservation, restoration and utilization of timber resources, devotes a great deal of attention to increasing the productivity of hunting land, propagating wild animals, developing beekeeping and subsidiary farming, planting berry crops and also procuring mushrooms and medicinal plants and utilizing the feed resources of the forest. Such comprehensive activity in running a business produces good results. The gross output of products per unit of forest area has increased almost 4-fold since 1975. As for the products of animal husbandry, wild animal raising, beekeeping and subsidiary utilization of timber, during this time it has increased 22-fold and in 1982 amounted to 3,393 rubles per 1,000 hectares of forest land. This is a 14-fold increase as compared to the other timber enterprises of Gorky Oblast.

As one can see, our forests have great potential possibilities and, with the proper arrangement of the matter can and should become a source of various kinds of products for the national economy, including for fulfilling the Food Program.

SOVETSKAYA ROSSIYA has raised the question of preserving the natural complex of Samarskaya Luka, a large bend in the Volga near Kuybyshev. This is a favorite place for mass recreation of the workers. On its territory are the picturesque Zhigulev mountains, a number of historical monuments, natural sights, and one of the oldest preserves of the RSFSR is located here. But also in this region are enterprises for extracting and producing construction materials which are extremely necessary to the national economy and which are used not only in Kuybyshev Oblast, but also for the most important construction sites outside of it. We do not have the right to forget about these resources for the time being.

The question of preserving the natural complex of Samarskaya Luka has also been considered by the commission. In order to utilize its wealth efficiently, it is intended to create a national natural park on a large part of its territory and to conduct measures here which increase its role as a preserve and for recreation.



At enterprises for producing construction materials which are outside the national park it is intended to implement additional measures for reducing their harmful influence on the environment. Their extraction of minerals will be controlled, and processing of wastes from mining will be increased. The recultivation of already worked sections will be continued at all mines and measures will be taken to improve the quality of this work.

The fate of such natural complexes is given constant attention by the commission.

Recently similar commissions have been created in a number of autonomous republics, krais and oblasts of the RSFSR. It seems that the creation of these commissions locally will make it possible to take a more profound approach to solving many problems and will have a positive effect on all work for the protection of natural resources.

Speaking in general about work for protecting natural resources, one should say that a full return from it is possible if the actions of state agencies are constantly reinforced by the initiative of the public and the participation of the broadest segment of people. One of the letters which arrived recently from Comrade Zabolotnikov from the city of Cheboksary is indicative in this respect: "As we know, 5 June is World Environmental Protection Day. I suggest that we should make this day a unionwide Sunday workday! So that everyone, young and old, will go out on that day to do harvesting, planting and other work on the streets, in the parks, in the forests and on the fields--everywhere!"

The appeal deserves attention and support.

In conclusion I should like to say that the interests of the national economy demand extensive implementation of measures for the protection of nature, improvement of ecology work throughout the country's economy, fundamental and applied research in order to accomplish this, the development and introduction of reduced-waste and waste-free technologies, the training of personnel in the necessary specialities, and the education of the people in the spirit of love and a thrifty attitude to the beautiful nature of our homeland.

11772

CSO: 5000/102

USSR

# BELORUSSIAN NATURE CONSERVATION MEASURES OUTLINED

Minsk SEL'SKAYA GAZETA in Russian 12 May 83

[Interview with Belorussian SSR State Committee for Conservation of Natural Resources Deputy Chairman N. A. Dubovets by V. Levin; date and place of interview not given: "The House We Live In"]

[Text] Scientists assert that each year about 100 billion tons of ore and construction materials are extracted from the subsoil in the whole world, 7 million tons of fuel are burned, and that the combustion products contaminate the atmosphere. Modern industry discharges over 200 million tons of various hydrocarbons, about 146 million tons of sulfur dioxide and 53 million tons of oxides into the atmosphere.

In the last half century the concentration of carbon monoxide in the air we breathe increased by 10-12 percent, while the concentration of solid particles increased by 12 percent in just the last 10 years.

These are alarming figures. How can we live in such a world?

It is impossible and unwise to halt technical progress. We must protect the house in which we live--this is a truth that can elicit no doubt. But while in socialist countries nature conservation has been elevated to the rank of state policy, the peoples of capitalist states, in which the monopolies are concerned only with profits, are especially concerned with this problem. By decision of the United Nations, 5 June of each year is commemorated as World Environmental Protection Day.

The progress of nature conservation efforts in the republic was the topic of an interview conducted with the deputy chairman of the Belorussian SSR State Committee for Conservation of Natural Resources, N. A. Dubovets, by a BELTA correspondent.

[Question] As we know, Nikolay Azarovich, our country plans to allocate 10.3 billion rubles of state capital investments to nature conservation in the current five-year plan. What is this money being spent for?

[Answer] It is being used to build water treatment and dust and gas trapping facilities, to introduce low-waste and wasteless processes into production, to preserve, restore and reproduce the animal and plant world and to support other nature conservation measures.

The responsibility of nature conservation has acquired the nature of a constitutional requirement in the USSR. Our republic has adopted a number of laws on environmental protection, on the use of land, water and timber resources and on conservation of the animal and plant world.

Man's technical activities and industrialization of industrial and agricultural production have now risen to unprecedented levels. Some time ago, one of Turgenev's heroes asserted that nature is not a shrine but a workshop, and within it, man is a worker. This was at the dawn of industrialization. And now we must interpret it as a shrine as well, mankind's future will depend on this in many ways.

[Question] The number of petrochemical, metalworking and power production enterprises has risen dramatically and new cities have appeared in Belorussia in recent times. What is being done to protect the biosphere?

[Answer] Let me begin with an example. Minsk, one of the country's largest industrial centers, was recognized the winner among the republic's oblasts and its capital in the republic socialist competition on nature conservation and sensible use of natural resources on the basis of the results for 1982. Sizable capital investments were assimilated for these purposes in the city, the plan for commissioning waste treatment plants was fulfilled, the planned quotas for introducing output capacities to trap and decontaminate toxic substances discharged into the atmosphere were surpassed by almost a factor of three, consumption of recycled water in production processes was greater than planned, and work was done to control city noise.

Here are some figures for the work in 1982: Development of "Schemes for Sensible Use of Protected Natural Territories of the Belorussian SSR" was completed and approved by the government. More than 100 places in which rare species of plants grow and 147 animal habitats were placed under protection. Thirty-two preserves of local significance were created.

A more active effort is being made to use wasteless and low-waste water supply systems and production processes; this effort is being conducted in Novopolotsk, Soligorsk, Mozyr, Gomel and other cities. A young forest has been planted over significant areas. Recreational green belts have been established around 122 Belorussian cities. Their total area exceeds a million hectares.

Preserves occupy about 900,000 hectares. Scenic, hydrologic, lake, cranberry and hunting preserves have been created. There are four refuges and hunting preserves and 59 state refuges on Belorussian territory. About 200 natural objects have been proclaimed as monuments and placed under state protection.

[Question] We would assume that the republic's scientists are also making their contribution to nature conservation measures.

[Answer] Quite so. The Belorussian SSR Academy of Sciences, the sector scientific research institutes and various VUZ departments are working on the problems associated with sensible use and protection of soil, the plant and animal world, air and water. A forecast of possible changes in the biosphere resulting from development of national economic sectors extending to 1990 has been drawn up. The republic government instituted the Belorussian SSR Red Book. It is the main scientific document serving as the basis for developing practical measures aimed at protecting rare and disappearing species of fauna and flora. The book contains 80 species of animals and 85 species of plants placed under special protection.

[Question] What sort of people are interested in nature conservation activities?

[Answer] We rely primarily on the active members of the Belorussian Nature Conservation Society, which has a membership of over 3 million. It conducts broad publicity in which prominent specialists and scientists, thousands of teachers, workers of scientific research institutes and VUZes, and lecturers of the "Znaniye" Society participate. There are 100 peoples universities, rayon schools and clubs for amateur naturalists. They have been created in all cities and rayon centers. Nature may be preserved for us and our progeny only through the joint efforts of all peoples and countries.

The mutual relationship between people and the environment and preservation of the biosphere are now among the most important problems. Belorussia is making its contribution to the activities of international organizations in this area, and it is a member of the Executive Council of the United Nations Environmental Program (UNEP). Bilateral meetings are being held with countries of the socialist fraternity.

Nature is the house in which man lives. And the sort of house it will be will depend on each country, region and oblast, and on each of us. This is why world society is commemorating World Environmental Protection Day.

This week, evening and morning discussions on specific topics will be held in Belorussia, as will scientific-practical conferences discussing the problems of nature conservation. Film festivals, exhibitions and quizzes will be conducted in the parks and squares. Scientists will discuss the problems they are working on with colleagues from different countries.

11004  
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USSR

QUICK RESPONSE AIR QUALITY ANALYSIS SERVICE ESTABLISHED IN MOSCOW

Moscow MOSKOVSKAYA PRAVDA in Russian 22 May 83 p 2

[Article by TASS correspondent Yu. Bersenev: "Good Health to You, City!"]

[Text] The mobile "Atmospheric Monitoring" laboratory can be called out at any time of the day to determine who is guilty of excessively fouling Moscow's air basin. This operational service is now being created under the Central High-Altitude Hydrometeorological Observatory in Ostankin.

Our destination was Kapotnya Microdistrict No 5, the residents of which had submitted a complaint of atmospheric contamination. As I gazed at the blocks of recently erected buildings rushing by, I thought to myself that ecologists do have their hands full in maintaining dependable control over the cleanliness of the air basin of the capital: It has gotten so big. It is no wonder that people say there is nothing like Moscow, having in mind not only its enormous territory, its population of 8 million and its concentration of major enterprises, but also the topography of the city, with its "seven hills." This makes the successes of nature conservation all the more impressive. There is no harm in once again recalling that in recent years, the concentration of dust, soot and sulfur dioxide in Moscow's air was reduced significantly.

The nature protection efforts are distinguished by an especially large scale and integration in the present five-year plan. And although the center of gravity is naturally shifting to the industrial enterprises, inasmuch as their activities do the most to pollute the environment, nonetheless the search for ways to improve the entire monitoring system has been expanded to the maximum.

It was in this way that the idea of creating a new service was born--one modeled on the medical emergency system but functionally much more complex. Even under ideal conditions, when everyone is aware of the discharge norms and everyone complies with them, it is very difficult to establish a disturber of the "peace of the atmosphere" among many enterprises standing side by side. Assume for example that an enterprise is behind in introducing progressive technology and must therefore rely on rush work to catch up, on occasion it may violate the standards and discharge, on the sly, more pollutants into the atmosphere than permissible. In such cases the residents of nearby blocks write or telephone: It is impossible to breathe, they say, or "we can't even

open the windows!" To collar the "hooligan"--that was the objective of our expedition.

Our "UAZ" made its way to the top of the hill and stopped at its very edge. Far below we could see the bend in the Moskva River and the ring road, the heat and electric power station next to it, and beyond that a plant. Having taken air samples at the stacks of these enterprises, having interviewed local residents twice, and having gathered data on the air temperature and humidity and the wind speed and direction, the chief of the expeditionary party gave the command to return home. Now we had to wait for the results of the analysis before the picture would become clear.

Acquainting myself with the materials of inspections conducted in response to such complaints from the laborers, I discovered many interesting examples. Thus in response to a letter written by Citizen S. Melenchuk, who resides in House No 4 on Danilovskaya Naberezhnaya, the TsVGMO [Central High-Altitude Hydrometeorological Observatory] conducted additional surveys of the micro-district on the nights of 11-12 March and 14-15 March.

Efficiency--this is the primary criterion by which the effectiveness of the new service's work should be measured, and because everyone understands this, they are making an effort to raise it.

"Yes, we do face many problems in this area," said Candidate of Technical Sciences A. Kurkovskiy, director of the TsVGMO's Moscow Center for Study and Control of Environmental Pollution. "Some of them can be solved by our own efforts, and we do so. The first thing we did was to develop a system making it possible for specialists of different profiles to make a diagnosis faster and, most importantly, more accurately by joint effort. After all, verification of a complaint requires integrated action, beginning with an immediate visit by an expeditionary party, if one is necessary, and ending with analysis of progress in fulfilling atmospheric protection measures by enterprises causing pollution.

"An example typical in this respect is what happened in response to a request of the public and of DEZ-17 [not further identified], Frunzenskiy Rayon, to inspect the work of the "Izolyator" Plant. The TsVGMO had already recommended measures for reducing the level of air pollution to this enterprise. But a new complaint was registered, and thus a second inspection was carried out. But we did not limit ourselves to just the inspection alone; we also acquainted ourselves in detail with the production process at "Izolyator" and with the progress reports on and plans for protecting the air basin. We devoted special attention to introducing dust and gas removing devices in light of the corresponding resolutions of the Bureau of the Moscow City CPSU Committee and the Executive Committee of the Moscow City Soviet on environmental protection. In particular we considered the fact that the sector organization next highest in authority had planned a further decrease of discharges of production by-products at the enterprise this year.

"An inspection office recently created under the TsVGMO will make it possible to achieve greater efficiency. Strict control is now being established over

the measures being implemented to fulfill our recommendations, and if necessary, sanctions can be imposed.

"For example supplying our expeditionary parties with improved mobile laboratories no longer depends upon us. The responsibility now lies with the enterprises that manufacture them and the scientific organizations that plan them. We need vehicles outfitted with apparatus for quick analysis of air samples capable of providing data on a larger number of components. Other difficulties involve both developing and introducing the mathematical methods of determining pollution sources, necessary primarily in relation to large industrial zones in the city; we need models stimulating regulation of air quality that account for the discharges of industrial enterprises, we need a meteorological station, and many other factors must be considered as well.

"This in turn requires creation of a special computer center and further improvement of automated systems for monitoring the environment."

The analysis results came in while I was still there. They showed that in terms of the main ingredients of atmospheric pollution--dust, sulfur dioxide and carbon monoxide--none of the maximally permissible concentrations were exceeded at the moment of the test. But at the same time, considering the complaints from the public and the unfavorable meteorological conditions, the TsVGMO submitted a recommendation to check the work of the waste treatment equipment of TETs No 22, the Moscow Petroleum Refinery and a number of other enterprises located near the microdistrict.

Revelation of the most significant air polluters requires extensive research. Such integrated research was conducted last year by decision of the Moscow City Soviet, and it is continuing this year.

The sensitive hand of the ecologists is constantly on the "pulse" of the city. And this is a dependable guarantee that Moscow's air will become increasingly cleaner.

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## INDUSTRIAL AIR POLLUTION PROBLEMS

### Atmospheric Monitoring in Latvia

Riga SOVETSKAYA LATVIA in Russian 14 May 83 p 4

[Text] LATINFORMA, 14 May--The Republic State Inspectorate for the Protection of the Atmosphere, having entered upon its duties, will consider every case of serious air pollution as an emergency. It has already conducted the first control inspections of projects in the national economy. The new service, which has been given broad authority, has been called upon not only to expose but also to prevent dangerous dumping of pollutants into the atmosphere. Not one plan for construction or reconstruction of an enterprise will be confirmed without first being approved by the inspectorate.

V. A. Lerkh, deputy director of the Republic Administration of Hydrometeorology and Control of the Natural Environment, says, "The primary purpose of this service is to keep watch over the statutes on protection of the atmosphere. Organizational activities are also included in its responsibilities. Latvia is the first among the Union republics to implement a complex program for the protection of nature and rational utilization of natural resources. A great deal can be done here by atmosphere patrols, supported by local Councils of People's Deputies, health inspection workers, the State Committee for Standards, the State Motor Vehicle Inspectorate and other departments. And one must also mention the strong resources found in the Republic Society for the Protection of Nature and Monuments, which includes over 370,000 activists."

We have a broad network of observation points for the evaluation of air quality. There are 17 stationary automatic laboratories, in addition to mobile ones. They collect information which forms the basis for conducting long-term, practical measures. For example, the fact that some wastes become toxic under conditions of fog or drizzle is taken into account. In order to eliminate concentrations of these substances under such conditions, plants receive special notification of the possible danger.

Control over the "respiration" of industry dictates stiff requirements. Maximum acceptable waste levels are now being established for each enterprise in Riga. A volume summarizing these standards is being prepared. Before the end of the 11th Five-Year Plan, over 200 smoke-producing boiler houses will be eliminated in Latvia, and they will be replaced by a centralized heat



supply system. During this same period, new installations will be put into operation that are able to clean a total of 8 million cubic meters of air per hour. Systematic work has also been started to deal with motor vehicle transport. All efforts are being directed at reducing the content of harmful substances in the exhaust.

The measures that are being taken are providing tangible results. The level of air pollution in the republic has been arrested at the 1975 level. But this is certainly not the end. The task that lies before us is to achieve further significant improvement in air quality.

#### Dirty Air of Ekibastuz

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 4 Mar 83 p 4

[Article by A. Rumyantsev, foreman at the "Ekibastuzshakhtostroy" [Ekibastuz Mine Construction] Combine, Pavlodar Oblast: "Smoke Around Smoke"]

[Text] Some 10 to 15 years ago, smokestacks were thought to provide evidence of industrial might. The more smokestacks it had, the more powerful the plant was thought to be. Today the smokestack is no longer an object of pride, but unfortunately it often remains the symbol of a plant, factory, or electric power station. This is not a positive symbol. The problem of protecting air quality in cities has become so serious, that someone described it humorously in this way: either people do something to reduce the amount of smoke in the air, or the smoke will do something to reduce the amount of people on earth.

The joke contains a fair amount of what is the sad truth.

Our Pavlodar-Ekibastuz industrial region is developing rapidly and this is accompanied by a growing number of smokestacks. A thermal and electric power station and a State regional electric power station are now operating in Ekibastuz, but with time another three will be added. If the air over the city is often polluted now, the problem will be aggravated in the future if serious measures are not taken.

Local newspapers write about this problem, sometimes quite critically. I follow the publications closely. But the matter is being improved extremely slowly. The treatment installations at both the electric power stations operate with great irregularity. In particular, the scrubbers and electro-filters at the State regional electric power station break down often and a considerable amount of time is spent on their repair. There is often a lack of accurate data on the degree to which an enterprise is polluting the air. Meanwhile, a special group has been formed for the protection of nature.

When you look into the condition of air treatment at the thermal and electric power plant and the State regional electric power station (using information from the press and elsewhere), you often see figures indicating the operating efficiency of the installations, such as 93 percent, 98.5 percent...These are

quite impressive figures, but the air is not getting any cleaner. This appears to be just conversation--smoke around smoke.

It seems to me that the time has come to improve the air in Ekibastuz and other cities in the oblast, and to take concrete, immediate measures. Specifically, this issue should be discussed at the regular session of the oblast Council of People's Deputies. Further, once our network of power enterprises expands, it will be necessary to conduct scientific research on industrial sanitation and improving the air in the cities. After all, today at the operating thermal and electric power plant, 1500 tons of coal are burned everyday and hundreds of tons of ash are released into the air, along with no small amount of gases. This "burden" on the air will grow. Finally, permanent, centralized control must be established to monitor the exploitation of existing treatment installations at electric power plants as well as the installation of new equipment. This is something for the oblast Committee of People's Control, the regional gas treatment inspectorate and the oblast sanitation and epidemiology station to work on.

At the 25th Congress of the Communist Party of Kazakhstan, it was indicated directly that it is necessary "...to intensify sharply the campaign against air pollution in industrial centers."

In my opinion, it is time to make a decisive move toward a practical solution for this problem in Ekibastuz as well.

#### Krasnouralsk Industrial Exhaust

Moscow SOVETSKAYA ROSSIYA in Russian 7 May 83 p 2

[Article by A. Usol'tsev, special SOVETSKAYA ROSSIYA correspondent in Novosibirsk-Krasnouralsk: "Smoke Screen"]

[Text] The morning sun was hanging low over Krasnouralsk. It seemed to be hopelessly stuck in the fence of smokestacks of the copper-smelting combine and tangled in the smoky train's silvery web, so that it would never rise to its zenith.

"So, you're checking out our smoke, are you?", the old yardman asked me. "We've got enough of the stuff here."

"Yes, the combine puts out a lot of smoke."

"Sure, it's got to put out smoke. We've got a well-known business here, smelting copper." The old man stroked his beard with his broad palm and unhurriedly lit a cigarette.

"We even used to have a special saying here: 'Kushayka laughs and Levinka cries; Levinka laughs and Kushayka cries.' That means that whichever direction the wind blows, people will be sneezing in that village. That was when everything went straight out the smokestacks. But now, unlike the past, the plant

is doing a lot less damage. They say that they are trapping the smoke and making acid, that means that they're putting out fertilizers. So it turns out that the bad stuff can be turned into something useful."

I came to Krasnouralsk to find out, in the words of the old yardman, how "the bad stuff is turned into something useful." I wanted to see how a development of scientists from the Catalysis Institute of the Siberian Department of the USSR Academy of Sciences was being put to use here. The scientists' proposed innovation is called an industrial reactor for oxidation of sulfur dioxide under nonstationary conditions. In other words, the device that has been installed and put into operation here in Krasnouralsk is capable of trapping the gaseous wastes of the copper-smelting combine that used to irritate Kushayka, then Levinka, and obtain from them valuable raw materials for industry and agriculture.

I first heard about this efficient method at the House of Scholars in Akademgorodok, where a scientific meeting of the Siberian Department of the USSR Academy of Sciences was being held. Onto the podium walked a short, gray-haired man wearing the star of a Hero of Socialist Labor on his lapel.

"Carrying Out Catalytic Processes under Nonstationary Conditions" is the topic of Academician Boreskov's presentation," announced the chairman.

I must admit that I did not think that the talk would interest someone who was not a specialist in the area of chemical reactions. I had had the occasion to hear about the new development of the scientists at the Catalysis Institute already, but I did not know the essence of it. But Georgiy Konstantinovich Boreskov was saying that the application of the method proposed by the scientists makes it possible to increase significantly the efficiency of an industrial enterprise, raise productivity, reduce expenditures on raw materials and power, and obtain other substantial benefits. The scientist spoke simply and convincingly. The silence that had fallen over the hall was disturbed only by the whirring of the projector that was showing slides. When the director of the Catalysis Institute finished his talk, the hall burst into applause. In an auditorium like this, this type of response does not occur very often.

Several days later I met with Yu. Sh. Matros, Academician G. K. Boreskov's closest assistant, coauthor of this development, and doctor of technical sciences. Yuriy Shayevich had just returned from France, full of impressions from meetings and discussions with foreign specialists. There is immense interest in the West in the ideas of the Siberian chemists. Industrialists are spending large sums of money to turn metallurgical gases into solid wastes, but these in turn also give rise to a utilization problem. The method developed by the scientists at the Catalysis Institute captures the imagination of every industrialist because of its advantages. Judge for yourselves. Gases are utilized completely, with no wastes, and are turned into valuable products. The new contact apparatus for obtaining sulfuric acid is 7-12 times easier and cheaper than the traditional device. No additional heat is needed to carry out the process of oxidizing sulfuric anhydride, as was required previously. On the contrary, it has become possible, by using surplus heat from the reactor, to obtain steam for domestic and industrial needs.

I walked around the combine with Vladimir Yakovlevich Kunitskiy, chief of the sulfuric acid shop. The new apparatus is his creation. After all, the scientists' idea would have remained just an idea if the plant's specialists had not brought it to life in metal. The design of the experimental reactor was calculated by workers in the planning and design department and the assemblies were manufactured in the machine shops. True, there was a snag with the valves for switching the movement of the gas mixture: our domestic industry does not produce valves like this. But the Krasnouralsk craftsmen manufactured some.

The new apparatus was installed in the sulfuric acid shop where the old apparatus had served out its time. In its assembled form, it looks like a dwarf next to the two other reactors that use the traditional method for obtaining sulfuric acid. They are three times as high and they weigh a full 200 tons more. If you take into account the metal input needed for the armature of the old ones, and that is not needed at all for the new one, the comparison certainly will not be in favor of these mastodons.

The start-up time for the apparatus was surprisingly short--only 48 hours. Since that time, 29 September of last year, the apparatus has been working non-stop, steadily and reliably. It also traps weak gases without any heating. This allows the combine, in addition to everything else, to save about 2900 tons of conventional fuel and 400,000 kilowatt hours of electrical power per year. And even though the time period for experimental industrial exploitation of the miracle reactor is not over yet, the workers in the sulfuric acid shop are already asking the combine's management when the second apparatus will be installed.

And here is where the main problems arise. Specialists are now coming from all parts of the country to Krasnouralsk and the Novosibirsk Akademgorodok to gain experience. They would like to install the innovation at ore mining enterprises in Armenia, the Urals, Kazakhstan and other regions of the country. They all ask for the technical specifications and they expect constructive explanations. But an academic institute is not a planning office and it is not the scientists' job to circulate the development. The industrial scientific research institutes and design bureaus still have not become involved with the innovation.

There is still no one to provide the new equipment. The management of the Krasnouralsk Copper-Smelting Combine imeni Sergo Ordzhonikidze is planning to install a second reactor. They are even ready to manufacture it using their own resources, but unfortunately the enterprise is having trouble obtaining metal. "If we only had 60 tons of heavy sheet steel!", dreams the combine's director as he directs attention toward the Ministry of Non-ferrous Metallurgy. Will the Krasnouralsk workers receive help from the industry's headquarters? And when will the Ministry of Chemical Industry give its opinion on the introduction of this innovation?

When Vladimir Yakovlevich Kunitskiy and I left the combine entrance, the day had reached its peak. Spring had done its work--the sun was smiling down from its zenith. Under its bright rays, the smokestacks seemed to have grown smaller and the smoke seemed less noticeable.

But when will there no longer be any smoke at all?

## AIR POLLUTION CONTROL IN UZBEK SSR DISCUSSED

Tashkent EKONOMIKA I ZHIZN' in Russian No 2, Feb 83 pp 72-74

/Article by K. Alimdzhанov, chief of the Department for Environmental Protection Gosplan, Uzbek SSR and L. Tulina, sr engr-economist, Department for Environmental Protection Gosplan, Uzbek SSR; Tasks and Problems of Air Quality Control"/

/Text/ Air quality control occupies a significant place within the full range of environmental protection problems. Air pollution from inadequate technological processes during emission cleaning, as well as the unsatisfactory operation of scrubbers and the siting of industrial enterprises without taking terrain conditions and the microclimate in the area into account, is occurring on a more broad scale.

Under the existing rates of development of industry and the introduction of measures to protect the atmosphere, pollution within the republic's cities may increase. But it must be mentioned that beginning in 1974 specific measures for air quality control have been introduced in Uzbekistan as stipulated in the state plan for the economic and social development of the republic. In particular, the plan protocol establishes goals for the amount of collected harmful substances through the introduction of powerful scrubbers and determines the volume of capital investment for these goals.

During the 10th Five-Year Plan dust and gas collector equipment with a total capacity of more than 4 million cubic meters of gas per hour was introduced within the republic. The fitting of pollution sources with devices for gas treatment and dust collection increased from 50 to 72 percent and the number of efficiently operating scrubbers increase by more than 30 percent. Measures are being taken to improve the work of all services in the use of cleaning devices. The network of laboratories for the control of emissions at industrial enterprises is constantly expanding.

The law for air quality protection has been enacted with the goals of further improving the state management system for the fulfillment of the assigned goals in Uzbekistan. As a result of the series of measures introduced to fulfill the mandates of the legislation, the volume of industrial emissions lessened at the "Elektrokhimprom" and "Navoiazot" production associations and the Akhangaran cement, the Almalyk mining and metallurgy, and the Bekabad metallurgy combines. Atmospheric emissions at Tashkent power plants and the Navoi and Angren State

regional electric power stations were significantly decreased through the control of fuel use, restrictions on the use of solid fuels, a reduction in the number of air pollution sources, and the renovation of collectors. In terms of several components (particulates, sulfur dioxide, and phenol) the air in the industrial cities has become noticeably cleaner.

An inventory of the sources of hazardous emissions into the atmosphere was carried out in 1980. The results served as reference materials that aided in reaching a new level of work in air quality protection and in developing maximum permissible emission standards for industrial enterprises.

Much has been accomplished for the active protection of the air quality in the republic, but to achieve more tangible results there must be genuine business-like contacts between all of the organizations that participate in the management and control of this sphere.

The department for environmental protection of the State planning committee formulates plans for environmental protection in general, and, in particular, for the quality of the air within the republic. The department collects and coordinates the plans and measures of the ministries, departments, and enterprises for the protection of air quality. For a number of years, laboratories of the State Committee for the Hydrometeorology Service have monitored the conditions in the air basin and measured emissions on site. The Tashkent and Fergana regional inspectorates actively control the operations of scrubbers and dust collectors at enterprises of the Ministry of Chemical Machine Building.

The main attention of the inspections is focused first of all on enterprises in those cities that have high levels of air pollution. Their basic activity is directed toward identifying sources of harmful emissions that should be equipped with scrubbers, and to determine the condition and levels of operation and efficiency in the work of existing installations of this type. Enterprises which are sources of air pollution are inspected two-three times annually.

Currently the certification and registration of all functioning gas scrubbers installed at the largest enterprises in the republic has been completed. The certification of these facilities has also been carried out at more than half of the enterprises.

The republic's Central Statistical Administration is doing much work in collecting and processing information on air quality control measures.

The sanitation inspectorate service of the Ministry of Health is fulfilling important control functions for the municipal air basins. Obviously, party and Soviet state organs are not standing aside in this matter.

But it must be recognized that there are still problems in the matter of air quality control in the republic. The largest and most frequent occurring pollution sources within the Uzbekistan air basin include enterprises of the chemical, oil refining, and ginning industries, ferrous and nonferrous metallurgy, power systems, and the construction materials industry. A significant amount of harmful emissions falls to the share of the rapidly expanding fleet of motor vehicles.



Air pollution increases also because portions of the republic, particularly Tashkent Oblast and the Fergana valley, are characterized by frequent air stagnation, repeated temperature inversions, high summer temperatures and little precipitation. In addition, the industrially developed centers are located in close proximity and the area is inundated with motor transport.

Industrial emissions are far from homogeneous. There are solid, more toxic gaseous, and liquid components, in approximately similar amounts. When organic and inorganic dust and soot are among the solid emissions, then the amount of liquid and gaseous harmful substances is significantly higher: sulfur dioxide, carbon dioxide, nitric oxides, carbon monoxide, ammonia, hydrogen sulfide, oil products, and so on. The collecting and decontamination of these are far from simple.

Although the continual improvement of production technology and scrubbing equipment has been directed at the better and more thorough collection of liquid and gaseous substances, the volume of these within the total amount of decontaminated substances is still slight.

Hydrocarbon, nitric oxides, and carbon monoxide are especially difficult to collect and carbon disulfide, lead compounds, and other metals cannot be collected at all. This obliges us to build new or renovate and modernize existing air protection facilities. However, such work is being carried extremely slowly. This applies to facilities of the ministries of gas, chemicals, and local industries. For example, because of the absence of planning and budgeting documentation, a facility for the treatment of gaseous emissions at the Fergana nitric fertilizer plant, which was planned for 1980, is not being constructed. Start-up work to attain the designed capacity for dust collectors was not completed on time at the Navoy cement plant, for individual scrubbers at the "Navoiyazot" production association, the Almalyk mining and metallurgy combine, and the Almalyk chemical plant. The problem of fitting scrubbers at the electroplating and foundry shops of machinery building plants is only slowly being solved. As in the past, the renovation of obsolete dust collectors at ginning plants is proceeding slowly. And this is so even though these plants are, as a rule, located in thickly populated areas.

The salvage and processing of collected industrial waste is becoming a critical problem. The total volume of utilization of harmful substances has reached 50 percent within the republic and the value of the collected raw materials that are available for further processing amounts to 6.5 million rubles. Obviously, from an economic viewpoint this is very valuable.

A low level of salvage of collected harmful substances has been noted at plants of the ministries of farm machinery building and of the light and food industries. Thus collected nonreclaimed wastes are delivered to dumping grounds where portions evaporate or dissolve and penetrate the soil and reappear in changed compositions as pollutants of underground water, soils, and the air.

This is why the question of maximum use of salvaged waste requires the most urgent attention both of enterprises and scientific research organizations.

Among the sources of environmental pollution, motor vehicle transportation is eliciting grave concern, since the engine exhaust fumes, which contain a substantial amount of toxic and carcinogenic substances, play a dominant role in the total pollution of the air basin. With the goal of abating the harmful influence of motor transportation on the atmosphere, the networks of stations for the diagnosis of auto and truck engines is expanding and testing depots and bays for engine tuning and maintenance are being organized. Steps are being taken to replace gasoline with other fuels that produce less harmful emissions.

The fleet of motor vehicles, particularly for personal use, is expanding rapidly, but the necessary equipment for regulating their emissions is inadequate. It is extremely difficult to plan for substantive reductions of these harmful emissions. In brief, the liquidation of air pollution from vehicle emissions continues to be a complicated task. Everyone who sits behind the steering wheel of a vehicle should be made aware of this.

What should the top priority be to significantly increase the effectiveness of measures for air quality control? The ministries and directors of industrial associations and enterprises cited in this article (as well as those not cited) must rapidly carry out the specified tasks and the measures derived from them; they must do all that is required to use reclaimed products; and, certainly, they must develop and introduce low or emission free production technology in an accelerated manner.

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POLLUTION COMMENTARY ELICITS RESPONSE

Shrinking River Causes Concern

Moscow SEL'SKAYA ZHIZH' in Russian 20 Mar 83 p 4

[Article by special pensioner P. Pavlov, Tsivilskiy Rayon, Chuvash ASSR: "A River Run Aground"]

[Text] For over half a century I have known the Malyy Tsivil, a river of stunning beauty. When I have nothing to do I like to sit on the bank with a fishing pole, and on hot days I go swimming. But alas, the river is growing shallower as the years pass. While in the past one would not even think of crossing it without a boat, now a chicken could ford it in many places.

In my mind's eye I can see the former river--full and wide. In summertime we used to bring our horses here for a bath. We would wash them down, and then set them loose to graze on the green meadow. There were many blackberries here. We wove baskets from the pliant willow branches that grew on the banks. Now the riverbanks are bare.

What went wrong? Quite simply, people stopped caring for the river. I remember when just within our Tsivilskiy Rayon, the river turned the millstones of four mills. They were located 5-6 kilometers apart. Our grandfathers found the time and energy to erect dams after every spring flood, and to gradually release the floodwaters in spring. Both the old and the young would come to dam the river. They brought earth and brushwood. Bridges were erected over the dams. This is why the Tsivil was always full.

Nor is there a place to live left for the fish in the Tsivil. Because of the low water levels in winter, they suffocate without air. And in summer .... You should take a look at the banks on weekends! Cars are driven right to the bank, tearing up the sod cover on the slopes. Other motorists wash their cars, and rainbow-colored spots of oil float on the water surface. Campfires blaze at night. These are poachers from the city, coming here to delight in fresh fish soup. They drag nets along the river like barge haulers. The nets catch both the big fish and the little ones. And there is no one to reason with the violators: I have never seen game wardens in this area.

The river is growing shallow also because numerous pumping installations that irrigate orchards, hop plantations, meadows and pastures take water from the

river in summer. All of the farms are good at using the water for irrigation, but no one gives a thought to the river itself. After the need for damming the river to mill grain vanished, people ceased caring about erecting dams.

There was one such attempt, but it was not graced with success. Fifteen years ago kolkhoz farmers of, as it was called then, "Zarya" Kolkhoz, Tsivilskiy Rayon began building a reinforced concrete dam and a bridge near the town of Stepnoye Tugayevo with the help of Mobile Mechanized Column No 2 of "Chuvash-meliovodstroy" Trust. They worked on it for a long time--over 10 years. They got the bridge built, and that was that. The contractor, Mobile Mechanized Column No 2, left the facility unfinished. And in the first spring after that, the supports installed for the dam gates were broken up and carried away by drifting ice.

It is saddening to look at the Tsivil today. No one cares about the river. Because the base of the dam had not been reinforced as required by the plan, water has begun eroding dirt from beneath it. The dam is now in danger of breaking. And meanwhile there are enterprises and organizations that have the job of dealing with this important problem, and they have powerful equipment at their disposal, not just shovels and horses!

Many rousing speeches are uttered at conferences on protecting nature and on multiplying its riches. But very little is being done in fact.

#### Corrective Action Offered

Moscow SEL'SKAYA ZHIZN' in Russian 15 May 83 p 4

[Article: "'A River Run Aground'"]

[Text] Such was the title of a critical article published on 20 March of this year. V. A. Agafonov, deputy chairman of the Chuvash ASSR Council of Ministers, informed the editor's office that the Chuvash ASSR Council of Ministers found the criticism of shortcomings in protecting the Malyy Tsivil River from shoaling and pollution to be warranted, and it ordered the republic ministries of land reclamation and water resources, agriculture and forestry, the "Chuvashmelioratsiya" association and the Tsivilskiy Rayon Executive Committee to implement supplementary measures to improve the hydrologic conditions and cleanliness of Malyy Tsivil River and to complete construction of four dams and one retaining structure in the river basin in the current five-year plan.

The Chuvash affiliates of the "Mosgiprovodkhoz" and "Volgovyatgiprozem" planning institutes are preparing plans for a water conservation zone and for protection of the waters of the Bolshoy and Malyy Tsivil river basins. Jointly with other departments, the Chuvash ASSR ministries of land reclamation and water resources, agriculture and forestry developed measures to restore the fullness and cleanliness of the rivers in 1983-1985, and in the period to 1990. These measures foresee construction of 15 retaining structures and over 20 erosion control dams in the basin of the Malyy Tsivil River. Protective forest strips are being planted on the banks, and measures to prevent river pollution are being implemented.

From The Editor: Publication of the article "A River Run Aground" produced a wide response from the readers. The newspaper will publish a review of this mail.

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USSR

BRIEFS

VOLCANO ERUPTION IN KAMCHATKA--Klyuchi (Kamchatka Oblast), 25 May (TASS)--  
The eruption of Bezymyanny Volcano began with a number of powerful explosions in its crater. It is being accompanied by a blowout of ash and gases up to 6 kms high. Groups of scientists have arrived at the foot of the volcano to conduct observations. Bezymyanny, which was considered to be an extinct volcano, suddenly came to life in 1955. As a result of a catastrophic explosion on 30 March 1956 a new crater with a 1.5 km diameter was created. Since then the volcano has been one of the most active on the peninsula. It is interesting that Bezymyanny is a neighbor of the Klyuchevskoy Volcano which has been erupting since March of this year. [Text] [Moscow TASS International Service in Russian 0840 GMT 25 May 83 LD]

CSO: 5000/132

## HUGE LOSSES IN 1978-1982 FROM FOREST FIRES

Athens I KATHIMERINI in Greek 28 May 83 p 2

/Text/ Speaking yesterday at the Attiki Nomarchial meeting on the extent of forest fires, Deputy Minister of Agriculture Ginoglou said that during the 1978-1982 5-year period more than 600,000 stremmas of forests were destroyed from fires. Specifically, at yesterday's meeting representatives of productive sectors, unions and other advisers discussed measures against forest fires and stressed the need to procure firefighting equipment from the local self-government organizations.

Ginoglou characterized the areas annually lost to fires as "very large" and added:

"In 1982 (and up to October) there were 931 fires throughout the country which burned 87,585 stremmas of forest and caused losses in forest vegetation valued at 4,978,948 drachmas while the cost of putting out these fires last year reached 1.8 million drachmas.

"This estimate of the losses," said Ginoglou, "represents the smallest figure since it does not include the forests' contribution to the social whole--an inestimable contribution. You should note," said Ginoglou, "that according to Prof. Ras of Calcutta University the real value of a tree 50 years old is 196,250 dollars or 1,373,750 drachmas and includes: the value of the oxygen, 31,250 dollars; the value of the soil protection, 31,250 dollars; the value of avoiding pollution, 62,000 dollars; the value of water recycling, 37,500 dollars; the value of providing shelter to animals, 31,250 dollars and that of produced proteins, 2,500 dollars. To the total value of 196,250 dollars we must also add the value of the lumber, the fruits, and leaves as well as the inestimable esthetic and recreational value."

The Nomarchial council subsequently dealt with the role of forest vegetation and forest environment to the industrial community.

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MERCURY CONTENT OF ATMOSPHERE INCREASING IN SWEDEN

Drawback of Coal

Stockholm NY TEKNIK in Swedish 21 Apr 83 p 4

[Article by Hans Werner]

[Text] Mercury from coal combustion fumes is an unsolved environmental problem. All other emissions can be purified with known cleaning technology. The study titled "Coal, Health and the Environment" states that the environmental effects of mercury must be better analyzed. At the same time, the study indicates that the Swedish environment can tolerate increased use of coal.

But this study was written before it was learned that the imbalance in the atmosphere causes 22.5 tons of mercury to rain on Sweden in addition to the 38 tons that originate from our own emission. See the article below [by Christer Larsson].

"Increased regulation (blacklisting of mercury-contaminated lakes and diet advising) could very well be needed to reduce the risks to an acceptable level," comments the Coal, Health and Environment Study on the environmental effects of mercury.

By the year 2000, 13 million tons of coal will be used in Sweden. With nuclear powerplant shutdowns, this will climb to 23.4 million tons a year. This is the assumption of the study, which took 3 years to complete and cost 45 million kronor.

The study points out that sulfur emissions in Sweden have been reduced by half in the past decade.

In order further to reduce the emissions, coal should first be burned in larger plants with competent operating personnel.

"The study has furnished us with new information on six points," says the study's project leader John Roden, department director at Vattenfall [state power authority]:

"We were surprised at the behavior of mercury. The release of mercury in coal combustion is higher than in oil combustion, but it can be limited by wet or wet-dry fume cleaning technology. In large plants, mercury can probably be reduced by about 75 percent.

"The study also found that the ashes and fume-cleaning products (acid fertilizer) can be used. The fly ash can be used as a cement additive, for sea fill or, as in Denmark, for road fill.

"Principles and technology for long-term storage of the unusable waste have been developed. We took the same timeframe as for nuclear wastes, i.e., up to the next ice age at around 10,000 A.D.

"The fourth point is that we demonstrated through extensive measurements that changes in emission remained slight in spite of variations in the operation of coal-burning plants.

"We have also found that the feared cancer risks with the use of coal are highly exaggerated. In well functioning large oil and coal plants, the emission of carcinogenic substances is negligible.

"Another important conclusion of the study is that NO<sub>x</sub> (nitrogen oxide) emission can be sharply reduced by good combustion technology. Guidelines for how much NO<sub>x</sub> can be released are now being discussed by the World Health Organization."

We might also add that the government is now discussing a new study titled "Gas, Health and the Environment."

#### Children Suffer

Stockholm NY TEKNIK in Swedish 21 Apr 83 p 4

[Article by Hans Werner]

[Text] A report issued by the Coal, Health and Environment Project indicates that 150 children suffer injury each year in Sweden from methyl mercury in fish and that for each ton of mercury released into nature approximately 5 Swedish children are born with serious brain damage. Full-scale coal burning will increase this emission by 0.5 to 1 ton per year.

"An increase in the intake of methyl mercury by Swedes is inadvisable," says Professor Maths Berlin at the University of Lund.

This is in effect a warning against a Swedish coal-burning program.

Mercury emitted into the air from coal burning, for example, can be transformed in soil and water into methyl mercury by the interaction of microorganisms.

Unborn babies are affected when pregnant mothers eat too much lake fish containing such mercury.

The damage affects the cerebral cortex and cerebellum of the fetus. The brain of a fetus is 2 to 5 times more susceptible to the effects of methyl mercury than is the brain of an adult.

#### Brain Damage

Professor Maths Berlin, a medical scientist at the University of Lund, has written in a report titled "Effects on Health of Mercury Emissions in Coal Burning" that any increase in the intake of methyl mercury by the people of Sweden is therefore inadvisable, for it would in all probability mean an increased risk of brain damage in the population.

He writes that supplemental studies must be made on the extent of the risk and on the factors which can limit its happening if such an increase must nevertheless be accepted or considered.

Taken literally, it appears on first reading to be a total condemnation of all coal burning.

Beyond this, there must be an immediate halt to the release of over 30 tons of mercury yearly by some branches of Swedish industry into the ground, water and air.

Coal burning on a large scale can increase the amount of mercury by about 0.5 to 1 ton a year.

#### Stop Acid Rain

Vattenfall's research group, which is testing methods to clean coal, showed earlier that at least a third of the mercury can be removed before burning. According to Nils Eric Carlstedt, maybe another half can be removed by wet exhaust-gas cleaning in large coal burning plants.

The mercury content in fish could, in his opinion, be reduced if we were able to reduce the acidification of the lakes. The chief problem, therefore, is the removal of sulfur.

A final report from the Coal, Health and Environment Project is expected within several weeks. Here, experts should be able to offer a considered judgment on all the problems faced by a large-scale introduction of coal into Sweden's energy system.

#### Atmosphere in Imbalance

Stockholm NY TEKNIK in Swedish 21 Apr 83 p 5

[Article by Christer Larsson]

[Text] The whole enormous ocean of natural mercury circulating in the atmosphere has reached an imbalance. The air pollution of modern society is the determining factor. To keep the mercury in the atmosphere, a balance is necessary between the atmosphere and auto exhaust emissions, combustion fumes and other gaseous industrial pollution.



Figures have been published that show how much is being emitted and raining down on Sweden.

The results are alarming. They give a new picture of how mercury ends up in nature.

"I am surprised myself how much mercury leaves the atmosphere as rain," says Prof Cyrill Brosset with the Institute for Water and Air Protection Research which made the measurements.

When the first mercury alarms were sounded in the 1970's, it was suspected at first that it was local industry that was making direct emissions of mercury into the poisoned lakes. How could completely isolated lakes contain fish that were heavily contaminated with mercury?

Now it is known that it is the huge discharge emission of untreated automobile exhausts, combustion fumes and other gaseous industrial discharges that affect the natural mercury content of the atmosphere.

This results in a new water-soluble form of mercury that no longer remains in the atmosphere before falling as rain.

The measurements now being made in Central Sweden show that each square meter receives on the average 25 micrograms of mercury each year from rain.

Added to this are at least equally large amounts of airborne mercury that dissolve on contact with lakes, seas and other wet surfaces. That is at least 50 micrograms per square meter each year in Central Sweden.

If all of Sweden receives as much mercury as Central Sweden the total will be at least 22.5 tons per year. That is probably a low estimate.

There is as yet no overall measurement of mercury rain over all of Sweden. The measured precipitation over Central Sweden corresponds to such measurements taken in the United States.

There is only one thing that we can do so as not to worsen what is happening with the atmosphere's mercury, says Gunnar Hovsenius, who leads one of the research projects with Vattenfall in the Coal, Health and Environment Study: "We have to reduce our poisonous emissions into the atmosphere. We must invest in stack-gas cleaning on a large scale. And we must do it now. We have already disturbed the major balances in the atmosphere.

At the same time, the Office of Environmental Protection is investing in a growing program for liming land and lakes.

"We have seen that we can initiate a self-cleaning process in both land and water by means of liming," says Gunnar Hovsenius.

"This allows us to reduce the effects of acidification which acts to dissolve the mercury sediment into new dangerous forms of poison," adds Hovsenius.

### The Volume

In 1976, 28 tons of mercury were released in Sweden and were deposited on the ground. Another 5.8 tons were emitted into the air, and 2.5 tons went into the water. Mercury used in dental care added another 2 tons to this, making a total of 38.3 tons. According to the Office of Environmental Protection, this emission has not changed significantly since. This, then, is to be added to the 22.5 tons that fall from the atmosphere.

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END